Foster Children's School Attainment: Evidence from Metropolitan Cape Town

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ABSTRACT

Fostering is commonplace in many African countries due to a variety of social, cultural, economic and geographical reasons. In South Africa, the prevalence of foster children is also evidence of the country's history of separation and discrimination. In this paper, I examine the school attainment of foster children using data from the Cape Area Panel Study (CAPS), collected in the Metropole of Cape Town. Based on cross-sectional data, I show that foster children have a lower grade attainment level than children who live with both their parents, even when they reside in the same household. In particular, double orphans and children with two absent parents perform relatively poorly. However, these disparities may be driven by unobservable factors that differ between foster and biological children. Data from CAPS offers researchers a unique opportunity to eliminate bias caused by time-consistent missing variables by comparing the school outcomes of children before and after they separate from parents. Based on an individual fixed effects analysis in which children are examined between the ages of 7 and 17, there is no evidence that separating from parents has a significant effect on the probabilities of advancing from the previous grade. However, non-constant effects of fostering appear to be present; foster children generally perform worse after the age of 13, and children with absent parents perform poorly prior to being fostered but better three years afterwards. In addition to the comparison between findings based on the cross-sectional and panel data, the other contributions of this paper are that; (1) comparisons between the school outcomes of foster and biological children must account for the parental death and absence of both groups, and, (2) with the exception of double orphans, separating from parents usually does not affect the school outcomes of black children.

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1. INTRODUCTION

It has long been thought that parental involvement at home, which incorporates investment in children's education, encouragement, support, supervision and help with homework, contributes to children's performances at school. It is for this reason that there has been considerable attention devoted to the human capital accumulation of AIDS orphans in South Africa. Studies using panel data in South Africa, where parental death is used as the event upon which a quasi-natural experiment is based, show that orphans fall behind at school (Case and Ardington 2006; Timaeus and Boler 2007; Ardington and Leibbrandt, 2009).

There are however a substantial number of South African foster children who stay with adults who are not their parents even when one or both of their parents are still alive. Fostering in South Africa is not uncommon due to the legacy of South Africa's apartheid laws, social norms and the country's high rate of HIV infection (Anderson, 2005). In this paper, the schooling of foster children, who are defined as living apart from both their parents either due to parental death or absence, is examined.

Foster children are made up of double orphans, children with two absent parents and children with one absent and one deceased parent. The category of foster child that they fall into will influence how much they differ from biological children. Children who have been orphaned and those who have living absent parents differ in two important ways. Firstly, living absent parents are able to provide support to their children, financially or otherwise. Secondly, while parental death is an exogenous event, living parents may place their children in foster care to improve their chances of success at school. Based on these factors, one would expect double orphans to perform the worst among the foster children and children with two absent parents to perform the best.

The combination of maternal absence or death and paternal absence or death may matter as well. The extent to which this is important depends on who children lived with before they became foster children, whether it was the death or absence of that parent that rendered them a foster child, and the involvement of absent mothers and fathers relative to when foster children stayed with at least one of them.

Who the foster children are being compared to is also important. Biological children themselves are a varied group. They may live with one or both parents. Some will be single orphans, which means that they have been orphaned by one of their parents.

In this paper, I examine if there is evidence that South African foster children are disadvantaged at school starting with a comparison of the grade attainment between biological and foster children using an ordinary least squares estimation procedure. I first compare all foster to biological children and then to each type of biological child. Afterwards, the school outcomes of each type of foster child are compared to each type of biological child. Next, I compare the school outcomes of foster and biological children who live in the same household to exclude unobservable differences between households that may impact on education. This is done using a household fixed effects analysis.

Even if foster children are disadvantaged relative to biological children in their host households, it is possible that they may be better off had they not separated from their parents. The closest one could get to analysing this counterfactual is to compare the education of foster children to that of their siblings who remain living with their parents. This is difficult with the data currently available in South Africa owing to the lack of panel datasets collected on a country-wide basis. [1]

The Cape Area Panel Study, collected between 2002 and 2009 in the Cape Town Metropole contains information about education and living arrangements for each year since respondents were born. Even though sibling comparisons are not possible, this dataset offers a unique opportunity to mitigate bias caused by individual-level missing variables, as one is able to compare whether becoming a foster child puts one at a disadvantage relative to one's previous performance at school. This is an important contribution because many factors important for education are immeasurable with survey data and it is likely that foster children differ from biological children in ways that will bias the comparisons between foster and biological children's educational attainment.

There are three main results using the cross-sectional data. Firstly, foster children and biological children are not homogenous groups. Double orphans have completed fewer grades than all biological children and the other types of foster children. Foster children with two absent living parents only perform significantly worse than biological children who live with both parents but not worse than those who live with single parents. Secondly, foster children perform poorly even when parental death among both foster and biological children is accounted for. Thirdly, with the exception of double orphans, there is little evidence that black foster children do worse than black biological children.

Using the panel data, I estimate the probability of advancing a grade by using an individual fixed effect analysis of children between the ages of 7 and 17. In contrast to the findings from the cross-sectional analysis, the results based on the panel data show that, being fostered has no effect on

[1] A national dataset is needed to trace the movements of both children who moved away and their siblings who stayed behind. The first national non-rotating panel data study is the National Income Dynamics Study (NIDS), the second wave of which is yet to be published. For the moment, it only exists as a cross-sectional dataset.

children's probabilities of advancing a grade, suggesting that the estimates based on the cross-sectional data suffer from missing variables bias. However, there is evidence that there are non-constant effects of being fostered and these findings may be used to explain some of the findings based on the cross-sectional data.

The first part of this paper uses cross-sectional data from CAPS to compare the schooling of foster children and biological children at one point in time. The second part is based on a panel dataset that contains information about children at each age level since they were born. Before I get to this, the related literature and data will be discussed.

2. LITERATURE REVIEW

This section has three parts. I start by introducing the international literature about the effect that parental absence has on children's development at school. The other inputs into education, associated with living apart from parents are discussed. Without accounting for relevant factors that are associated with foster children, those factors will be mistaken for the effect of living apart from both parents on school outcomes. Next, I outline the reasons that children are separated from parents in South Africa and illustrate that endogenous selection is likely to be present, at least when fostering was voluntary. Finally, I provide an overview of the existing South African literature about how living arrangements impact on children's education to illustrate how this analysis of foster children fills gaps in this area.

2.1 International Literature about Foster Children's Outcomes

Foster children forego the support associated with living with one's parents. Support involves discipline, nurturing, teaching, language transfer, stimulation, monitoring, and schedule management (Brooks-Gunn and Markham, 2005). The extent to which foster children forego this support is a function of contact with their absent parents and the extent to which the adults with whom they live fill the parenting vacuum. Even if foster children are subject to the so-called 'Cinderella effect', which means that they are treated poorly relative to the biological children in their host households, they may still be receiving as much support as when they lived with their biological parents.

Formally, the 'Cinderella effect' is based on Hamilton's (1964) theory of kin selection or inclusive fitness. It describes the phenomenon whereby parents invest the most time, effort and money in children with the greatest shared genetic material in order to advance reproductive survival, or because they think that their biological children are the most likely to contribute to the future income

of the household.[2] For an unequal resource allocation to constitute a 'Cinderella Effect', foster children would need to have a rate of return to schooling that is equal to or larger than biological children; it is rational that resource-constrained households allocate resources to the household's most productive children (Marazyan, 2011).

There is a large body of literature in the United States about the so-called 'Cinderella effect' on step and adoptive children (Astone and McLanahan 1991; Daly and Wilson 1987, 1996; McLanahan and Sandafur 1994; Wojtkiewicz 1993; Boggess 1998; Case et al 1999; Biblarz and Raftery 1999; Lin and McLanahan 2000, 1999; Ginther and Pollak 2004; Hamilton et al 2007). According to Astone and McLanahan (1991), children living with single parents or step families receive less parental encouragement and attention than children in intact families, and family structure affects outcomes throughout their schooling. McLanahan and Sandefur (1994) find that children in households with non-biological parents and stepparents have a lower educational attainment than those who grow up with biological parents. Wojtkiewicz (1993) and Boggess (1998) also report a negative and statistically significant correlation between living with a stepfather and educational attainment.[3]

Anderson (2005) argues that while human social organisation often reinforces genetic ties, many social interactions are independent of the degree of relatedness (Jankowiak and Diderich 2000; Jones 2000; Polioudakis 2000). Further, there may be social rules which dictate caring for relatives children as one does one's own, thereby overriding the 'Cinderella effect'. According to Zimmerman (2003), social rules in Southern Africa incorporate caring for foster children in this way (Zimmerman, 2003).

Foster children may differ from biological children in a systematic way, which makes it tricky to compare their outcomes at school. Educational attainment is a function of learner, parent, household and school characteristics. If foster children are more likely than other children to exhibit certain characteristics, then their education relative to that of biological children may be incorrectly attributed to living apart from one's parents. In the US literature about living arrangements, there is evidence that once family background is accounted for, the perceived disadvantage of step and adopted children diminishes or disappears (Ginther and Pollack 2004; Biblarz and Raftery 1999). I turn to the factors that may be systematically correlated with children's living arrangements.

[2] The rule is expressed as rb>c, where b and c are the benefit and cost of an altruistic act respectively and r is the degree of genetic relatedness. An altruistic act will occur if the benefits of the recipient, discounted by the degree of genetic relatedness, exceed the cost to the donor (Anderson, 2005: 2). In other words, the less related one is to the recipient of the benefits, the less the benefits will matter to the contributor.

[3] Step children are similar to foster children in that many of them have living parents who they do not reside with all the time but from whom they might still get input. However, step children always have one parent present who may be in the position to safeguard their interests. Foster children on the other hand can only rely on their parents at a distance or not at all. Step children are also likely to have experienced conflict between parents, which may have disrupted their educational development.

The extent to which host households are resource constrained is important. Poor households cannot afford to invest in all children's education until their expected returns to education equal the market interest rate. Therefore, if host households are poorer compared to other households, some or all the children in the household will not receive the investments required to reach their full potential (Marazyan, 2011). Lang and Zagorsky (2001) found, after controlling for family background and individual characteristics, that paternal absence had only modest effects on children's cognitive abilities.

There is evidence from other African countries that host households are sensitive to the cost of educating foster children. Mussa (2009) finds, by examining price and income elasticities that the education of Malawian foster children is a luxury good; households are more sensitive to the cost of educating foster children compared to biological children especially if they are not related. Host households are also sensitive to the opportunity cost of time spent in school. According to Seck (2005), rather than send them to school, Tanzanian orphans are more likely to be at work or idle, which is in line with Ainsworth's (1996) study about Cote D'Ivoire, where being placed in foster care was found to be accompanied by a transfer of domestic labour.

The allocation of resources to foster children might also be a function of whether the receipt of foster children strains the household's resources. Using panel data from Uganda between 1992 and 2000, Deminger et al (2003) argue that there are fewer investments in the productive assets of foster children because the unexpected receipt of a child is a shock to the household's income. Marazyan (2011) shows that school enrolment of Indonesian children increases with the number of foster grandchildren due to transfers from biological parents to foster grandparents. However, the increase in the proportion of foster children not staying with grandparents does not have a significant effect because, in this case, the receipt of foster children is unlikely to be accompanied by remittances.

The number of young people in the household determines the extent to which the household's resources are diluted (Becker, 1991; Alderman and King, 1998; Cox, 2007). The share of the household's resources allocated to foster children is a function of how many other school-going children the household supports (Lu, 2005). There is a second theory called the teaching effect, which predicts that the number of children in the household has a positive effect on children's outcomes because children learn from being taught by their older siblings or even from teaching their younger siblings (Ota and Moffatt, 2006: 226).

Having additional adults in the household may mitigate the effects of absorbing foster children into it (Lu, 2005). Amoateng (2004) claims that absorbing more children may not be a problem for large

families as resources will not need to be spread thinly if more income-earning adults share the household's expenses. The more working adults there are, the lower the opportunity cost of children's time spent at school. Also, more adults are available to supervise and help with schoolwork. Pensioners in particular have been found to play a significant role in improving the outcomes of their grandchildren. Duflo (2000) finds that the presence of grandmothers with pensions is correlated with better anthropometric statuses of granddaughters in South Africa. According to Ardington et al (2010), South African grandparents play a key role in caring for orphaned grandchildren.

There is a positive relationship between the education of parents and their children in the international literature. This is attributed to inherited ability and parental involvement in their children's education, for example, by assisting with homework, conferring language skills and placing high expectations on their children (Albert 2000; Dustmann 2004; Kodde and Ritzen 1988; Lauer 2003). Bhorat and Oosthuizen (2006) found that the average education of adults in the household was positively correlated with matriculation pass rates countrywide in 2000.

It is plausible that the reason that foster children fall behind relative to other children is because they fall behind prior to being fostered, for example because they cared for sick parents (Cherlin et al 1991; Ginther and Pollack 2004; Mussa 2009). There is mixed evidence about whether the disadvantage of orphans predates the death of their parents. Case and Ardington (2006) find, using a panel dataset from Kwazulu-Natal in South Africa, that foster children were not behind prior to losing their mother. According to Seck (2005), even though they did not perform worse on reading, writing or calculations before their parent's deaths, orphaned Tanzanian children fared worse once they joined host households. On the other hand, Evans and Miguel (2004), show that in Kenya, there is a small but increasing difference in attendance between orphaned and other children two years before the death of parents, especially for those who have lost their mothers. In other words, orphans did not drop out as a result of the death of parents but due to the circumstances preceding it.[4]

There are other significant unobservable factors that may contribute to foster children falling behind biological children. If, when children were separated from parents, they also changed schools, they could have had problems coping if the school from which they came was behind in the syllabus. In addition, the ability of foster children may differ to that of biological children if prior circumstances affected their cognitive development (Zimmerman, 2003).

[4] The US literature about this is also mixed. For example, Cherlin et al (1999) show using longitudinal data and before-after comparisons that elementary school children whose parents divorced performed poorly in school prior to the change in family structure. Painter and Levine (2000) found no evidence of poor performance prior to separation when they examined the educational outcomes for teenagers.

A variety of factors may complicate an examination of foster children's outcomes at school. Some of them can be dealt with in a multivariate analysis but many factors are immeasurable so they remain a problem when studies are based on cross-sectional data. Another immeasurable factor is the likelihood that parents put children in foster care to improve their access to education. In the following section, I examine the main reasons for fostering in South Africa.

2. 2. Reasons for Fostering in South Africa

In many African societies it is common to send one's children away for a few months or years at a time (Zimmerman 2003: 560). This is done for four main reasons: cultural reasons, like deepening kinship ties; social reasons like parental death and divorce; economic considerations like difficulty in supporting children, income shocks and stabilising income before asking children to join them; and geographic reasons like labour migration and large distances from schools (Gordon and Speigel 1993; Preston-Whyte 1993; Niehaus 1994; McDaniel and Zulu 1996; Noumbissi and Zuberi 2001). According to Zimmerman (2003), children are fostered for similar reasons in South Africa.

The legacy of apartheid laws has contributed to the prevalence of foster children in South Africa (Anderson, 2005). Migrant and labour laws separated black fathers from their offspring for most of the year resulting in many households with single parents. Families of black men, for example, were not permitted to stay with them in the cities where they worked on 1 year contracts.

Anderson (2005) argues that apartheid laws gradually led to 'matrilocal' societies, fewer traditional marriages, more divorce and a higher number of births out of wedlock (Simkins 1986; Burman and van der Spuy 1996; Thompson 1990). Today, there are many female-headed households where mothers rely on relatives to help run the household and raise the children. Children, especially when they are young, are often placed in the care of relatives while mothers work elsewhere (Gordon and Spiegel 1993; Preston-Whyte 1993; Niehaus 1994; Zwang and Garenne, 2009).

The apartheid policy of Bantu Education has also played a role in why many South African children are fostered. Under this policy, schools serving black children, followed by those serving coloured children, were the least well resourced.[5] The difference in school quality created by the Bantu education system of the past has persisted despite progressive reforms in funding allocations[6]; in 2000, former white schools had the highest matriculation pass rate, a pass rate that was on average

[5] In 1994, the average white pupil received nearly four times the expenditure on schooling than black children (Lemon, 2004: 270).

[6] By 1997, for every R1.00 spent on white learners, R1.41, R1.27 and R1.39 was spent on black, coloured and Indian learners, respectively (Bhorat and Oosthuizen, 2009).

26.904% above that of black schools, controlling for school and community characteristics (Bhorat and Oosthuizen, 2009)[7].

Due to the persisting differences in the quality of schools in former black, coloured and white areas, South African learners are sometimes sent away to access schools better than those in the areas in which their parents live (Zimmerman 2003). Based on interviews with children in three schools in the Fish Hoek Valley, an area in Cape Town, Bray et al (2010) describe children who had been moved from the Eastern Cape in order to access better schools. The province of the Eastern Cape, where the majority of the population was classified as 'African' during apartheid, has a higher proportion of under-qualified teachers than the national average[8]. The Western Cape, which is where the predominantly coloured population of Cape Town is situated, has consistently achieved the highest matric pass rate in the country whereas the Eastern Cape has performed the worst; in 2012, matriculants in the Eastern Cape and Western Cape achieved a pass rate of 58.1% and 82.9% respectively (Parker, 2012)

There is thus reason to believe that when foster care is voluntary some South African parents place their children with adults in order to improve their access to quality education. If this is the case, there will be endogenous selection or sorting of children, parents and host households. Parents who send their children away for schooling may do so because they value education highly. They may only send away children who they perceive to have the highest rate of return to education, so it is possible that foster children are selected on the basis of qualities like intelligence and persistence (Zimmerman, 2003). Finally, parents may place their children in households where they know they will succeed based on factors like close proximity to relatively good schools, a conducive home environment, and trust in the adults of host households to tend to their children (Ardington and Leibbrandt 2009; Anderson 2005).

Many children do not live with either parent for involuntary reasons, in particular HIV-related deaths, which is a relatively common occurrence in South Africa. About 13.3% of South African children have lost one or both of their parents to HIV/AIDS (South African Census, 2001 cited in Case and Ardington, 2006: 401). In 2006, the Department of Education estimated that there were 1.5 million maternal AIDS orphans in the country (Hlabyago & Ogunbanjo, 2009: 506). According to Ardington and Leibbrandt (2010), single orphans are as likely as before to be absorbed into the households of

[7] Coloured and Indian schools experienced a 13.039% higher pass rate than former black schools (Bhorat and Oosthuizen, 2009).

[8] The Eastern Cape is also one of the poorest provinces in the country whereas the Western Cape, where Cape Town is situated, is one of South Africa's richest (Community Survey, 2007). A sizable portion of the population has been migrating to Cape Town and other cities for job opportunities since the mid-20th century (Case and Deaton 1998; Siqwana-Ndulo 1998; Jones 1993; Thompson 1990; Younge 1982; Anderson et al 1999 cited in Anderson, 2003: 3-4).

extended families whereas there is a lower probability that single orphans stay with their surviving parent. This means that orphans are more likely than before to be fostered even if one parent is still alive. In these circumstances, single orphans are like double orphans; they are forced to become foster children.

There is a higher probability of being sent away to attend a better school amongst those foster children who live apart from parents compared to double orphans or single orphans who have little contact with their remaining parent. Nevertheless, the parents of double orphans could have placed them in foster care before they died and it is possible that the host households chosen for double orphans were also endogenously selected.

Children who have been orphaned and children who live apart from one or both living parents differ in another significant way; living absent parents are able to provide continued support to their children, financially or otherwise. In the third part of this literature review, I discuss the available South African literature about the relationship between educational outcomes and parental absence and death.

2.3 South African Evidence about Foster Children's Outcomes at School

Little has been written about the performance of foster children in South Africa. There is more information about the correlation of living arrangements with education (Anderson et al, 1999; Anderson, 2005) and the effect of being orphaned on South African children's performances at school (Ardington & Leibbrandt, 2009; Case & Ardington, 2006; Timaeus & Boler 2007;). I discuss these findings as well as the results of Lu (2005), Anderson et al (2001), Zimmerman (2003) and Ardington and Leibbrandt (2010), all of whom examine the educational outcomes of foster children to some extent.

Kermyt Anderson (2005), using Wright's (1922) coefficient of genetic relatedness, found that in comparison to children living with close relatives, living with more distant kin leads to fewer completed grades of education on average and a greater likelihood of being behind in school based on the black respondents in the nationally representative Income and Expenditure Survey and the October Household Survey in 1995. The results of Anderson's (2005) analysis are not directly comparable to this analysis, which hones in on parental absence; he weights full siblings and genetic parents equally, and children who live with their parents as well as other relatives, like aunts and cousins, have a lower coefficient of genetic relatedness than children who live with their parents only.

In another study based on a sample of 340 black Xhosa-speaking high school learners in Guguletu, Cape Town, Anderson et al (1999) collected information about both the resident and non-resident parents. They report that resident genetic fathers spend more on children's schooling than resident stepfathers or non-resident genetic fathers. They also find that the longer genetic fathers spend with their children, the more they help with their homework. They do not find the same pattern amongst resident stepfathers. Given the small sample size and the fact that the study was conducted at a school with learners from a similar socioeconomic background, the authors draw these conclusions on the basis of mean differences between the subgroups. They do not account for differences in household size or composition so their estimates may suffer from missing-variables bias.

Lu (2005) provides an insight into whether living in extended family arrangements can mitigate the negative effect of incorporating additional children into 'foster households'. Using the Survey of Socioeconomic Opportunity and Achievement (SSOA), conducted in the early 1990's and a 10% sample of the 1996 Population Census in South Africa, Lu (2005: 37) shows that the more children there are in black foster households, the lower is the enrolment rate of children. However, living with extended family appears to mitigate the effect of absorbing children into the household. On the other hand, in foster households, having more siblings has a negative effect, even in the presence of extended families because parents of foster children do not have control over host households' resource allocations.[9]

There is evidence from longitudinal studies in South Africa that being orphaned by one parent will affect educational outcomes. Given that many single orphans live with extended families rather than their living parent, and since double orphans are, by necessity, foster children, I briefly discuss these results. Using data from Kwazulu-Natal, a province in South Africa, Case and Ardington (2006) find that mothers' deaths have a causal relationship with education. This is confirmed by Ardington and Leibbrandt (2009) using a longitudinal dataset from CAPS that is almost identical to the one I use.

In contrast, Timaeus and Boler (2007), using household fixed-effects and difference-in-difference models, argue that the death of fathers leads to slower progress through school, and find no evidence that the same is true for maternal deaths using the second and third waves of the KwaZulu-Natal Income Dynamics Study. [10] They also find that living apart from one's father has a negative impact on children's grade attainment whereas co-residence with mothers is only beneficial if they matriculated

[9] This result does not depend on whether biological children also reside in the household. In other words, it is not clear whether foster children live in 'mixed' households or whether the adults of the households only look after foster children.

[10] Timaeus and Boler (2007) use the KwaZulu-Natal Income Dynamics Study, which is a panel of households interviewed between 1993 and 2004 in the province of KwaZulu-Natal.

from high school.[11] Maternal and/or paternal death may affect children's performance because it results in them living apart from both parents. In this analysis, I briefly examine whether both the death of parents and being placed in foster care affects children's schooling.

Although it is not the main part of their research, Ardington and Leibbrandt (2010) compare the educational outcomes of foster children with absent living parents, 'virtual double orphans' and double orphans. Based on 10 nationally representative cross-sectional surveys conducted between 1993 and 2005, Ardington and Leibbrandt (2010) find that black children with two absent parents of school-going age have attained less education than children who stay with at least one of their parents. They are nonetheless better off relative to virtual double orphans, who in turn perform better than double orphans.

'Virtual double orphans' includes both maternal orphans with absent living fathers as well paternal orphans with absent mothers. The extent to which these two groups differ depends on: (1) who children stayed with prior to becoming a virtual double orphan (eg. if it was with only their mother, becoming a maternal orphan with an absent father will be worse), (2) whether death or absence caused them to become a virtual double orphan (eg. paternal orphans may be sent away by their mothers or children with absent fathers may be orphaned by their mothers, thereby being forced to become a foster child), (3) the involvement of their remaining parent and (4) whether their remaining parent put them in foster care to improve their education. I will differentiate between each type of virtual double orphan to examine whether there are differences in the educational attainment between the two groups.

Ardington and Leibbrant (2010) examine the schooling of biological children, who are defined as living with at least one parent. The findings of Anderson et al (2001) can be used to demonstrate that the various types of biological children do not perform homogenously. In their analysis of schooling consequences and outcomes, Anderson et al (2001) find, using the 1995 October Household Survey (OHS), that children living with both genetic parents have the best schooling outcomes relative to other children; they are more likely to be enrolled and to have completed more grades. Children living with neither have the worst outcomes and children living with single mothers are in-between. Since the dataset is cross-sectional and 'within households', it is impossible to ascertain both when foster

[11] Children with co-resident fathers perform no worse than children whose fathers are currently not staying with them even though they were considered part of the household. Paternal orphans and children whose fathers were not part of the household are more likely to be behind at school compared to children who stayed with their fathers. The difference is not due to socio-economic differences. Also, children who later separate from their fathers were not already behind in school. The difference-in-difference estimation results confirm that paternal death slows the progression of children through school.

children moved in, and the characteristics of children's non-resident biological parents who may continue to be involved (Anderson, 2001:13).

Zimmerman (2003), who focuses on foster children, explicitly considers the possibility of endogenous selection. Based on an analysis of 8627 black South Africans using the South African Project for Statistics on Living Standards and Development (PSLSD) collected in 1993, Zimmerman (2003) demonstrates that foster children are not less likely than others to be enrolled and there is no 'Cinderella effect' of absorbing children for formal labour or household chores. He shows that households from which foster children leave ('out-fostered households'), find it more difficult to educate their children because they are poorer than households that have absorbed foster children ('in-fostered households'). He concludes from this that there is endogenous selection; fostering is employed to further the development of human capital.

Since the dataset Zimmerman (2003) employs is cross-sectional, the 'out-fostered' households are not the same households that the foster children in the 'in-fostered' households left. The actual households of the foster children's biological parents in the study may not be any worse in terms of their socio-economic status. There may also be unobservable differences between foster children in the in-fostered and out-fostered households that will bias the estimates. Analyses based on panel data can be used to better understand whether foster children perform worse than they would have had they remained behind by comparing their education before and after they were placed in foster care.

The literature highlights the complexities of isolating whether foster children fall behind at school as a result of separating from parents. While there is some evidence that living apart from one's parents holds foster children back, there is reason to believe that many South African children are sent away in order that they may attend better schools. The presence of endogenous selection will lead to biased estimates of the relative education of foster children. I will attempt to clarify these complexities by focussing on a variety of living arrangement categories, and comparing the results based on overlapping cross-sectional and longitudinal samples from Cape Town. A description of these samples follows.

3. DATA

The data are from The Cape Area Panel Study (CAPS), which is drawn from the metropole of Cape Town. The primary purpose of CAPS was to compile a longitudinal study of youths and young adults (YAs) in Cape Town collected over five waves between 2002 and 2009. Youth and young adults (YAs) were defined as household members between the ages of 14 and 22 in the first wave. For the rest of the paper, I refer to them as YAs.

CAPS was designed as a stratified two-stage sample in Wave 1, based on targets for the number of YAs from each population group to be interviewed. The first stage involved the selection of sample clusters by using enumeration areas (EAs) from the 1996 Census, which were stratified by the three main population groups in Cape Town, namely coloured, black and white. The black population was oversampled in order to obtain an equal proportion of black and coloured respondents to better reflect the demographics of the country. Blacks comprise 79.4% of the population (Statistics South Africa, 2011: 3) but just 32% of Cape Town (Community Survey, 2008: 6). The second stage involved the selection of 25 households within each cluster. Up to three YAs in each household were chosen to be followed, based on their most recent birthdays (Lam et al, 2008).

The first wave, collected in 2002, included interviews of 4800 randomly selected 14-22 year olds. Interviewers returned to the young adults who remained in the Cape Town Metropole in 2003/2004 (Wave 2), 2005 (Wave 3), 2006 (Wave 4) and 2009 (Wave 5), collecting detailed information about schooling, employment, health, family formation, household characteristics and intergenerational support systems.

The interviewers also collected basic information about the household members of the YAs in each wave of CAPS. In Wave 1, information about the household members of a random sample of households where no 14-22 year old youths resided in 2002 was collected as well. Since the YAs rather than these households were tracked across the waves of CAPS, information about the household members cannot be used as a panel dataset. Although information about many household members is collected in each wave, it is difficult to match up household members in each consecutive wave. Furthermore, the information collected about household members in the waves following Wave 1 is not representative of Metropolitan Cape Town since many of the YAs moved out after they were interviewed in 2002 and information was only collected about current household members.

My analysis is based on two overlapping CAPS samples. The first sample is a cross sectional one based on the 7-17 year olds from the household roster in Wave 1. Only children between the ages of

7-17 are included because I focus only on school outcomes; if they do not fail or drop out, South African children start school between the ages of 5 and 6 and finish when they are 17 or 18 years old.

Because it was intended to supplement the information provided in each wave about the YAs, the questionnaires given to other household members contained much less detail than that administered to the YAs. Information about grade repetition, which is considered important in the South African context, can only be alluded to by analysing grade completion.

Had the YA sample been used to identify the living arrangements of children, the number of hybrid households, which includes both biological and foster children, would have been underestimated.[12] In addition, just 39.35% of the children from the household roster are YAs. The accuracy of living arrangements and a larger sample size was chosen at the expense of more detailed information about living arrangements and schooling.

The second part of the analysis is based on a panel dataset in which information at each age of the YAs are used. A life calendar, containing basic information about what has happened to the YAs in each year since they were born, was compiled in Wave 1. Combining this with information collected from the four subsequent waves following Wave 1, I compile a panel dataset about education and living arrangements by age for each YA up to the age at which they were last interviewed. Since I am only interested in analysing schooling outcomes between age 7 and 17, and the youngest YAs were 14 years old in Wave 1, only information from the first four waves is used.

Usually, panel datasets are constructed over time whereas this one includes information at each age level. [13] The age-based panel dataset is used even though there is comprehensive information about living arrangements in each of the five waves conducted. In theory, one should be able to compare foster children to their siblings who continued to stay with their parents while controlling for general changes in schooling over time. Too few children became foster children between the waves to do this; just 33, 11 and 2 of the YAs became foster children between Waves 1 and 2, Waves 2 and 3 and Waves 3 and 4 respectively. Of those who moved out, just 13 YAs left behind siblings (22).[14]

The samples are restricted to coloured and black children. In the CAPS Wave 1 sample from the household roster, there are only 7 White foster children and no Indian foster children between the ages

[12] For example, if the young adults in the YA sample are all biological children, the households in which they reside will not be considered a hybrid household even if there is a 13 year old foster child staying there.
[13] Therefore, children who reach different ages at different times are compared to one another; a 14 year old and his 16 year old sister in Wave 1 will be compared at every age level before they reach 14, even though the 14 year old reached those age levels two years after his sister did.
[14] Information about the presence of parents is not available in the household roster of Wave 2. I generalise from the two waves following Wave 1 whether the YA's have siblings who reside with their parents in Wave 2.

of 7 and 17. It is not uncommon for researchers to focus on one or a few race groups when examining the education of children in South Africa (Anderson et al 1999; Zimmerman 2003; Anderson 2005; Case and Ardington 2006; Ardington and Leibbrandt 2009).

In the rest of the paper, I discuss each sample separately. The first sample from Wave 1 of the household roster is a cross-section in which comparisons between biological and non-biological children are made. The second sample combines the lifetime calendar and the longitudinal data about YAs to construct a panel dataset by age from 7-17. This sample, which is essentially a retrospective panel dataset, will be used to compare the educational outcomes of YAs when they were separated from both parents relative to when they stayed with parents.

4. A CROSS-SECTIONAL VIEW

In this section, I use the cross-sectional data from Wave 1 of CAPS. In Section 4.1, I describe the sample of 7-17 year olds, the households in which they live and the support offered to foster children by resident and non-resident parents as well as other resident adults. I then discuss the method used to conduct a multivariate analysis of the differences in grade attainment between foster and biological children in this sample. The results of the multivariate analysis are presented in Section 4.3.

4.1. DESCRIPTIVE ANALYSIS

To set the scene, I discuss the living arrangements of the 7-17 year old children in this sample, the characteristics of the households in which they live, and their education at each age level. Because the Young Adult (YA) sample contains a wealth of information about intergenerational support, I also discuss the extent to which living biological parents support their children, and how much assistance YAs get from the household members with whom they live.

4.1.1. Data Description

The composition of the sample is discussed in this section. When I refer to biological children, I mean all children who stay with at least one of their biological parents. The subcategories of biological children are those who reside with (1) their mothers only, (2) their fathers only, and, (3) both their parents. When I refer to foster children, I refer to; (1) double orphans, (2) maternal orphans with absent living fathers, (3) paternal orphans with absent living mothers, and (4) children with two absent living parents.

The composition of the sample is presented in Table 1: Children's Living Arrangements, aged 7-17 in Wave 1 below. There are 4827 respondents between the ages of 7 and 17 from the household roster. Foster children make up 15% of the sample. There is missing information for 214 of the 7-17 year olds. Missing observations also include children for whom the living arrangement of only one parent is known.

The living arrangements of black and coloured children are also depicted in Table 1: Children's Living Arrangements, aged 7-17 in Wave 1. Race is self-defined though it tends to follow the classifications used during apartheid. Race is relevant in so far as it is a proxy for different historical reasons for fostering. Due in part to the legacy of apartheid laws, many black South Africans still stay in rural areas where schooling is of a poor standard so children are sent to stay with relatives to attend better schools. Coloured South Africans, on the other hand, were permitted to live in Cape Town during Apartheid so it is possible that they are placed in foster care for other reasons.

Table 1: Children's Living Arrangements, aged 7-17 in Wave 1

	Full Sample		Black		Coloured	
Both Parents Present	**2086**	**43.22%**	**751**	**34.14%**	**1335**	**50.82%**
Mother Present	**1591**	**32.96%**	**791**	**35.95%**	**800**	**30.45%**
Father Dead	395	8.18%	239	10.86%	156	5.94%
Father Absent	1189	24.63%	548	24.91%	641	24.40%
Father's Vital Status Missing	7	0.15%	4	0.18%	3	0.11%
Father Present	**211**	**4.37%**	**112**	**5.09%**	**99**	**3.77%**
Mother Dead	50	1.04%	28	1.27%	22	0.84%
Mother Absent	161	3.34%	84	3.82%	77	2.93%
Foster Children	**725**	**15.02%**	**425**	**19.32%**	**300**	**11.42%**
Both Parents Dead	71	1.47%	62	2.82%	9	0.34%
Both Parents Absent	478	9.90%	255	11.59%	223	8.49%
Mother Absent, Father Dead	89	1.84%	58	2.64%	31	1.18%
Father Absent, Mother Dead	75	1.55%	45	2.05%	30	1.14%
Mother's Vital Status Missing	4	0.08%	1	0.05%	3	0.11%
Father's Vital Status Missing	8	0.17%	4	0.18%	4	0.15%
Total Less Missing data	**4613**	**95.57%**	**2079**	**94.50%**	**2534**	**96.46%**
Missing Information	**214**	**4.43%**	**121**	**5.50%**	**93**	**3.54%**
Total	**4827**	**100.00%**	**2200**	**100.00%**	**2627**	**100.00%**

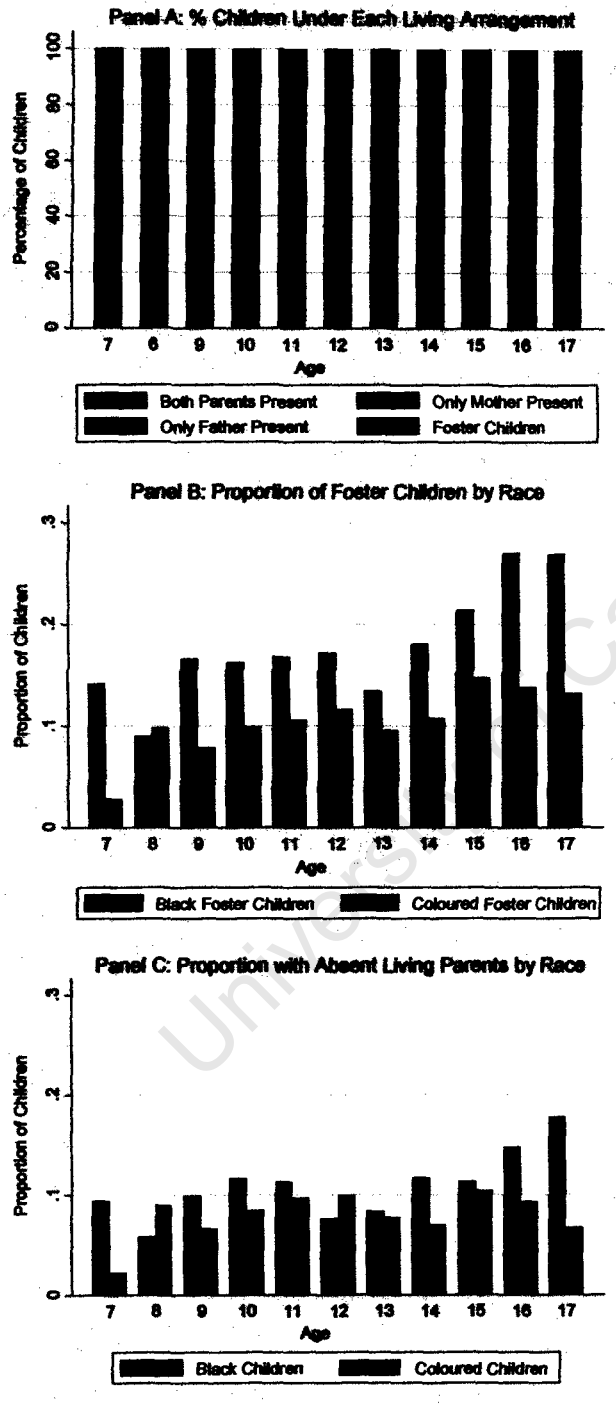
Source: Own calculation using CAPS data from the household roster in Wave 1

Even though more children reside with both parents, a large proportion of the sample stays with single mothers (32.96%), most of whom have non-resident living fathers. In contrast, few children stay with just their fathers. There is a far smaller proportion of children living with both their parents in the black community than in the coloured community which is possibly an artefact of the previous migrant labour system in which black fathers were separated from their offspring.

Altogether, there are substantially more paternal orphans (11.50%) than maternal orphans (4.06%) in the sample, and fewer coloured than black children have been orphaned; about 16.32% and 6.14% of the black children are paternal and maternal orphans respectively while just 7.4% and 2.32% of the coloured children have been orphaned by their fathers and mothers respectively. There is evidence to suggest that recorded HIV rates are lower among South Africa's non-black population, possibly explaining the differences in the prevalence of orphans between the two racial groups in this sample (Shisana et al, 2005: 40).

residence, together with their current household members, after they were fostered. Nevertheless, comparisons across living arrangements can give one a sense of when children were fostered.

Figure 1: Proportion of Children under Each Living Arrangement



Source: Own calculation using CAPS data from the household roster in Wave 1

Notes: The stacked bar chart in Panel A represents the proportion of children at each age level living under each living arrangement. The bar chart in Panel B is the share of black and coloured children who have been fostered. Finally, the proportion of children with two absent living parents is depicted in the bar graph in Panel C. Data are weighted to account for sample design and household non-response.

Table 2: Movement of Children, aged 7-17 in Wave 1

	Biological Children						Foster Children	
	Both Parents Present		Only Mother Present		Only Father Present			
	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Black								
Born in:								
Cape Town	0.694	0.019	0.647	0.022	0.610	0.051	0.501	0.026
Western Cape	0.016	0.005	0.008	0.004	0.037	0.026	0.015	0.008
Eastern Cape	0.252	0.018	0.273	0.018	0.336	0.048	0.430	0.026
Moved to Cape Town:								
At Birth	0.736	0.018	0.680	0.022	0.636	0.049	0.526	0.026
Age 1-6	0.113	0.013	0.127	0.020	0.066	0.023	0.100	0.015
Age 7-12	0.115	0.013	0.141	0.014	0.165	0.038	0.199	0.021
Age 13-17	0.036	0.007	0.052	0.008	0.133	0.034	0.175	0.020
Moved into Current Residence:								
At Birth	0.475	0.021	0.429	0.020	0.502	0.053	0.325	0.024
Age 1-6	0.214	0.017	0.211	0.021	0.101	0.027	0.159	0.019
Age 7-12	0.228	0.017	0.254	0.018	0.244	0.044	0.254	0.024
Age 13-17	0.083	0.011	0.106	0.011	0.152	0.036	0.261	0.023
Coloured								
Born in:								
Cape Town	0.961	0.007	0.946	0.010	0.966	0.016	0.940	0.014
Western Cape	0.030	0.006	0.033	0.008	0.010	0.007	0.027	0.009
Eastern Cape	0.001	0.001	0.008	0.003	0.000	0.000	0.009	0.005
Moved to Cape Town:								
At Birth	0.974	0.006	0.961	0.009	0.966	0.016	0.956	0.012
Age 1-6	0.018	0.005	0.015	0.004	0.000	0.000	0.018	0.009
Age 7-12	0.007	0.003	0.024	0.007	0.018	0.011	0.014	0.007
Age 13-17	0.000	0.000	0.000	0.000	0.016	0.011	0.012	0.006
Moved into Current Residence:								
At Birth	0.451	0.015	0.515	0.020	0.412	0.057	0.505	0.031
Age 1-6	0.297	0.015	0.191	0.017	0.248	0.057	0.162	0.023
Age 7-12	0.210	0.013	0.213	0.017	0.287	0.053	0.199	0.025
Age 13-17	0.042	0.006	0.080	0.010	0.053	0.022	0.134	0.020

Source: Own calculation using CAPS data from the household roster in Wave 1

Notes: The data are weighted to account for sample design and household non-response. The statistics only pertain to each category of child that has non-missing information on all the variables.

Based on Table 2: Movement of Children, aged 7-17 in Wave 1, more black foster children are born outside Cape Town and in the Eastern Cape than biological children. Secondly, a higher proportion of black foster children moved to Cape Town between the ages of 7 and 17 compared to black biological

children who live with both their parents and single mothers, suggesting that many are fostered from the Eastern Cape to attend school in Cape Town. Thirdly, few coloured foster children were born outside Cape Town. Fourthly, more black and coloured foster children than black and coloured biological children moved into their current residences between the ages of 13 and 17. Finally, more coloured foster children have stayed in their current residence since birth than biological children. Foster children who have been living in the same residence since birth either did not change residences when they were fostered and/or they have been fostered since birth.

Only living parents can time when to place their children in foster care. Table A1 in the Appendix replicates Table 2: Movement of Children, aged 7-17 in Wave 1 but only for the foster children with two absent living parents. Similar trends are found among all coloured foster children and just coloured children with absent parents. Of those who moved to Cape Town, a higher proportion of black children with two absent parents moved between the ages of 7-17 than all foster children. A larger proportion of black children with absent parents moved into their current residences between the ages of 13 and 17 compared to the proportion of all black foster children. This implies either that many children are placed in foster care when they would typically be at high school or that the living situation of black foster children is less stable than black biological children.

The noteworthy findings of this section are: Firstly, a large proportion of the sample from the household roster in Wave 1 is classified as a foster child. Secondly, most of the foster children live apart from two living parents. Thirdly, there are more black than coloured foster children in the sample. Fourthly, more black foster children were born outside of Cape Town and in the Eastern Cape than biological children. Finally, although it may also imply that foster children move around more often than biological children, information about movement into Cape Town and into their current residences suggests that many children are fostered around the time that they attend school.

4.1.2 Characteristics of Absent and Present Parents

In the previous section, it was established that most of the foster children live apart from at least one of their living parents and most of the children living with single parents have a living non-resident parent. Absent parents may still be involved in their children's lives. A comparison of the characteristics and level of involvement of absent and present parents ensues.

Little information about children's biological parents exists in the household roster so I turn to information collected about the young adults, referred to below as YAs, who make up a subset of the household roster. In Wave1, 1946 YAs between the ages of 14 and 17 were interviewed. There were

821, 671, 96 and 358 YAs living with their parents, their mothers, their fathers or with neither of their parents respectively. Table 3: **Absent and co-resident parents of 14-17 year old YAs, Wave 1** presents information about the characteristics of absent and present parents and their level of involvement.[15] Tables A2 and A3 in the Appendix present the same information as in Table 3: **Absent and co-resident parents of 14-17 year old YAs, Wave 1**, but for black and coloured YAs respectively. There are 80 and 107 absent coloured mothers and fathers respectively and 124 and 320 absent black mothers and fathers respectively.

The years of education, marital status and employment status of parents who stay with children were collected from the household roster. Information about absent parents is only available for the YAs. Therefore, there is missing information about the absent parents of children who do not form part of the YA sample. Not only is there missing data about many of the absent parents but these variables also probably suffer from measurement bias since many children will not be fully informed of the characteristics of their biological parents if they have little contact with them (Ardington & Leibbrandt, 2010: 49).

Even though absent parents have accumulated more years of education than present ones, more present than absent parents are employed. That 22.2% and 10.4% of absent mothers and fathers live in the Eastern Cape respectively may partly explain the difference; the Eastern Cape is predominantly rural with fewer opportunities for formal employment than Cape Town.[16]

The rest of Table 3: **Absent and co-resident parents of 14-17 year old YAs, Wave 1** measures the material and non-material support that the present and absent parents of YAs provide. I examine the extent to which absent parents are still in contact with their children by looking at the frequency of meals eaten and personal issues discussed. 'Often' requires interaction several times a month or once a week and 'seldom' means once or twice a year, every few months, or once a month.

Close to 70% of the absent mothers eat with their children at least once a year, whereas over a half of the absent fathers never eat with them. Coloured absent mothers eat with their children more often than black absent mothers do because half of the black absent mothers live in the Eastern Cape. The extent to which absent and present mothers and fathers discuss personal issues with their children indicates that absent parents are less involved than present parents but absent mothers stay in contact more than absent fathers do.

[15] There are 1528 and 922 present mothers and fathers and 349 and 726 absent mothers and fathers respectively.
[16] The population in the Cape Town Metropole was 32% black, 48% coloured and 19% white in 2001 (Ardington and Leibbrandt, 2009: 6).

Two measures of financial support are used, namely whether parents buy clothes and buy gifts for their children. Once again, absent parents provide material support less frequently than co-resident

Table 3: Absent and co-resident parents of 14-17 year old YAs, Wave 1

	Mother				Father			
	Present		Absent		Present		Absent	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Support At School								
Most Important Influence on School Performance	0.6906	0.0142	0.3630	0.0366	0.2088	0.0164	0.2254	0.0389
Helped with Homework	0.2482	0.0129	0.0558	0.0178	0.1690	0.0157	0.0734	0.0234
Provided Money for School in Past 12 Months	0.8123	0.0118	0.4716	0.0383	0.7524	0.0160	0.5887	0.0439
Financial Support in Past 12 Months								
Bought Clothing	0.9060	0.0085	0.5433	0.0378	0.7627	0.0160	0.6288	0.0428
Bought Gifts	0.7434	0.0125	0.4482	0.0384	0.6505	0.0175	0.4722	0.0460
Ate a Meal Together in Past 12 Months								
Always	0.9690	0.0052	0.0327	0.0149	0.8075	0.0148	0.4735	0.08
Often	0.0180	0.0042	0.3263	0.0378	0.0576	0.0089	0.0997	0.0279
Seldom	0.0061	0.0022	0.3862	0.0364	0.0492	0.0084	0.2123	0.0354
Never	0.0070	0.0023	0.2548	0.0325	0.0857	0.0100	0.2145	0.0355
Discussed Personal Issues in the Last 12 Months								
Always	0.2586	0.0126	0.0068	0.0068	0.1550	0.0131	0.1285	0.0283
Often	0.2783	0.0137	0.1693	0.0302	0.1805	0.0154	0.1221	0.0333
Seldom	0.2430	0.0130	0.3894	0.0370	0.2314	0.0166	0.2558	0.0399
Never	0.2201	0.0120	0.4345	0.0380	0.4330	0.0186	0.4936	0.0456
Characteristics								
Education	8.6390	0.0887	8.7067	0.2274	8.6888	0.1337	8.4291	0.2957
Employed	0.6498	0.0140	0.5156	0.0382	0.8083	0.0138	0.7265	0.0398
Marital Status	0.6949	0.0132	0.4751	0.0382	0.9056	0.0108	0.6032	0.0454
Lives in CT			0.6982	0.0321			0.8117	0.0312
Lives in WC			0.0320	0.0135			0.0275	0.0157
Lives in EC			0.2224	0.0274			0.1043	0.0226
Lives in Gauteng			0.0192	0.0087			0.0351	0.0135
N	1385		205		813		218	

Source: Own calculation using CAPS data from the young adult sample and household roster in Wave 1
Note: The data are weighted to account for sample design as well as household and individual non-response. The statistics only pertain to absent and present living parents and to children with non-missing information on all the variables.

parents do, though more absent fathers than absent mothers contribute to their children's expenses. Since 48% and 35% of absent mothers and fathers respectively do not buy clothes for their children, many YAs will rely on allocations from the households in which they live.

The final part of Table 3: **Absent and co-resident parents of 14-17 year old YAs, Wave 1** illustrates the material and non-material support that parents provide for their children's education. More of the absent fathers finance their children's school expenses compared to absent mothers. Although few absent mothers and fathers help their children with homework, just 24.8% of YAs who live with their mothers and 16.9% of YAs who stay with their fathers are helped by them. More coloured fathers than black fathers help their children with homework, possibly because coloured fathers have completed more years of education. With respect to assistance with homework, most biological YAs are not any better off than foster YAs.

Close to 70% of the YAs living with their mothers cited them as being the most important influence on their performance at school, whereas just over a quarter of the YAs who stayed with their fathers referred to them as being the most important. While 40% of the absent mothers were named the most influential, just 3.6% of the absent fathers were cited. Therefore, on these measures, non-resident parents contribute less than resident parents and absent mothers are altogether more supportive for their children's schooling even though fewer of them contribute to their school fees.

Although the coloured YAs see their absent parents more often than black children and receive more financial resources from them[17], a higher proportion of black mothers than coloured mothers are cited as being the most important influence on their children's education. One possible explanation for coloured absent parents spending more than black absent parents is that more of the coloured YAs with an absent parent live with single parents, who are able to compel them to pay maintenance.

Table A4 in the Appendix, replicates Table 3: **Absent and co-resident parents of 14-17 year old YAs, Wave 1**, but only for the absent parents of foster YAs, who in this case only include virtual double orphans and children with two absent living parents. Foster YAs' absent fathers are less involved than all absent fathers. The reason is that YAs with absent fathers who stay with their mothers tend to be more involved than the absent fathers of foster YAs.

The main findings of this section are that (1) although absent parents are less involved, many more absent mothers than absent fathers continue to provide material and non-material support to their children, (2) absent black mothers yield more of an influence on their children's school performance than absent coloured mothers, and, (3) absent fathers of foster children provide less support than they do to children living with single parents.

[17] More coloured parents than black parents spend money on their children's clothing and gifts though this may reflect differences in socioeconomic status between the black and coloured YAs in the sample.

4.1.3. Household Characteristics

Based on the previous section, although fewer absent parents invest material and non-material resources in their children's education, many absent mothers continue to play a supportive role. I turn now to the characteristics of households into which foster children have been absorbed and the extent to which household members make up for any deficit that foster children experience as a result of living apart from their parents.

Foster children may be absorbed into households in which biological children live with one or both of their parents. I refer to these households as 'hybrid' households. It is in hybrid households that household fixed effects estimates of Zimmerman (2003) are based. Foster children may also be absorbed into households where no biological children between the ages of 7 and 17 live. I refer to these households as 'foster- only' households.

Table 4: Comparisons of households of 7-17 year old children, Wave 1 presents summary statistics for hybrid, 'foster-only' and 'biological-only' households based on information from the household roster. Households are classified on the basis of the living arrangement status' of the children between the ages of 7 and 17 who live there. There are 240 hybrid households, which include foster children and children who live with at least one of their parents. Only foster children live in foster-only households; households including children who live with either parent are not included. There are 279 such households. Unsurprisingly, most (2027) households are biological-only households, which are households where foster children do not reside.

I also break down the biological-only households into households where there are only children who live with their parents, just their mothers, and just their fathers.[18] Compared to biological-only households, a lower proportion of all households containing foster children are coloured households. About 1056, 760 and 101 biological children live with their parents, only their mothers or only their fathers respectively.

The average education of adults in the household serves as a proxy for the long-run socioeconomic status of that household. The adults in both hybrid and foster-only households have a lower average education level than the adults in biological-only households. The log of income per capita is the lowest in hybrid households. However, biological-only households with single mothers tend to be even poorer than foster-only households. Based on these two measures, hybrid and foster-only

[18] There are just 32 households in which biological children under different living arrangements live together so they are not examined separately.

households are of a lower socioeconomic status than biological-only households where two parents are present and biological-only households where just fathers are present[19].

[19] There is thus no evidence to suggest that the households in which foster children live were chosen on the basis of households' socioeconomic statuses. However, the socioeconomic statuses of these households may be better than that of the other households that foster children could have joined. There might also be unobservable characteristics that are relevant to children's education like location or the learning environment that made biological parents choose those households.

Table 4: Comparisons of households of 7-17 year old children, Wave 1

	Foster Children are Present				Biological-Only Households							
	Hybrid Households		Foster-Only Households		Total		Both Parents Present		Only Mother Present		Only Father	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Living Arrangement												
Both Parents	0.57	0.04	0.00	0.00	0.39	0.01	1.00	0.00	0.00	0.00	0.00	0.00
Father Only	0.07	0.02	0.00	0.00	0.06	0.01	0.00	0.00	0.00	0.00	1.00	0.00
Mother Only	0.45	0.04	0.00	0.00	0.61	0.01	0.00	0.00	1.00	0.00	0.00	0.00
No Parents	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pensioner Resident	0.23	0.03	0.43	0.04	0.15	0.01	0.12	0.02	0.00	0.02	0.23	0.05
Log Household Size	1.96	0.02	1.53	0.03	1.59	0.01	1.62	0.01	1.49	0.02	1.50	0.04
No. Young People	3.84	0.12	2.02	0.08	2.31	0.03	2.33	0.04	2.19	0.05	1.90	0.12
No. Old People	2.65	0.09	2.19	0.08	2.23	0.03	2.38	0.06	1.98	0.06	2.08	0.13
Log Income Per Capita	5.90	0.07	6.15	0.06	6.36	0.03	6.55	0.03	6.08	0.06	6.31	0.11
Racial Category												
Black	0.43	0.03	0.41	0.03	0.27	0.01	0.22	0.01	0.35	0.02	0.40	0.06
Coloured	0.57	0.03	0.59	0.03	0.73	0.01	0.79	0.01	0.65	0.02	0.60	0.06
Mean Adults' Education	8.20	0.21	8.12	0.19	8.96	0.07	9.25	0.09	8.68	0.14	8.23	0.37
No. Households	242		285		2390		1055		755		101	

Source: Own calculation using CAPS data from the household roster in Wave 1

Note: Only children, about whom there is non-missing data for all the variables, are included. The data are weighted to account for sample design and household non-response.

The number of young people is a measure of how many children's educational needs the household must support. The average number of young people is lower in foster-only households than biological-only households. The average number of adults is a measure of the potential sources of additional support, material or otherwise. There are more adults in hybrid households than the other households, which is expected given that hybrid households include biological children who live with at least one of their parents.

It is tricky to use the household roster to identify children's grandparents. Instead, I focus on adults who have reached pension age. In South Africa, the pension age of men was 65 and that of women was 60 in 2002. 'Foster-only' households have the highest proportion of co-resident pensioners (42.7%). Hybrid households only contain a higher proportion of pensioners than biological-only households with two parents. Many mothers and fathers in single parent biological-only households also rely on the support of pensioners.

Error! Reference source not found. presents information about the support offered by other household members to the 358 foster YAs. The support offered by other household members to biological children is shown in Table A5 of the Appendix. Siblings and grandparents do appear to have played a part in enhancing the performance of foster YAs at school. Of the foster YAs, 9.4% and 23.7% of siblings and grandparents respectively were cited as having the most influence on their school performance. In contrast, biological children cited 3.1% and 19% of their siblings and grandparents respectively. About 21.7% of siblings and 4.8% of grandparents helped foster children with homework whereas 13.7% and 3% of grandparents and siblings helped biological children.

Around half of the resident guardians, who may include grandparents and siblings, support foster YAs financially, though they do not appear to provide much in the way of non-material support. Of the resident guardians who do support foster children, fewer resources may be allocated to them than to biological children. The differences in expenditure on school fees and other educational expenses between foster children and biological children are depicted in Figure 2: **Educational Expenditures by Living Arrangement and Age.** Panel A in Figure 2: **Educational Expenditures by Living Arrangement and Age** presents the household expenditure on school fees of enrolled children by age. The log of school fees is a proxy for school quality.[20]

Achievement at school is associated with socioeconomic advantage, mainly because wealthy parents can afford to send their children to good schools. Most teachers in government schools receive a

[20] School-related expenditures of 0 were recorded as 0.00001 before they were logged.

salary from the government, and schools are allocated an additional budget for other school resources based on a progressive allocation system. Schools with wealthy parents are able to supplement

Table 5: The Support that Foster YAs Receive from Other Household Members, Wave 1

	Mean	Std. Err.
Resident Guardian Provided Financial Support in Past 12 Months		
Bought Clothes	0.743	0.03
Bought Gifts	0.599	0.03
Resident Guardian Contributed Money for School in Past 12 Months	0.620	0.03
Most Influence School Performance		
Grandparent	0.237	0.03
Brothers or Sisters	0.094	0.02
Help with Homework		
Grandparent	0.048	0.01
Brothers or Sisters	0.217	0.024512
Other Family Member	0.192	0.025387
No Help	0.280	0.028651
N	299	

Source: Own calculation using CAPS data from the young adults in Wave 1
Note: Only children about whom there is non-missing data for all the variables are included. The data are weighted to account for sample design as well as household and individual non-response.

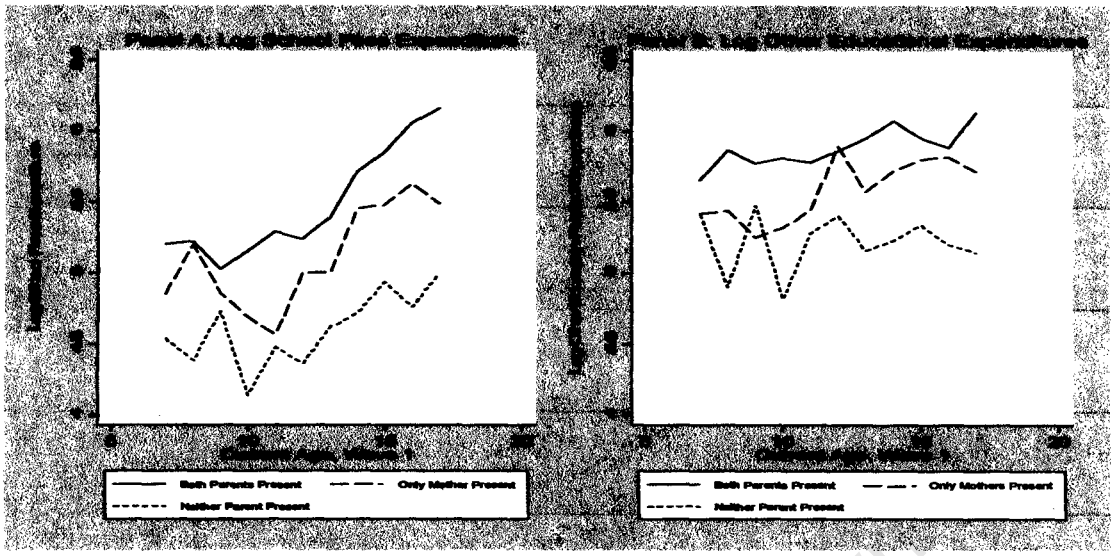
teachers' salaries thereby attracting the best teachers. They also are able to hire additional staff members and pay for more school resources (Lemon, 2004: 272; Bhorat and Oosthuizen, 2009; Fiske and Ladd, 2004; Yamauchi, 2005). School fees is not a perfect measure of school quality since it is illegal for schools to turn away children who are unable to afford school fees; therefore it is possible that many poor children at schools will not pay the same as fellow students at the same school.

Expenditure on school fees increases after age 9 (Figure 2: **Educational Expenditures by Living Arrangement and Age**). It is highest for children staying with both parents, followed by those staying with their mothers only. Even if parents cannot afford to send their children to good schools, they could be investing in their children's education in other ways. Other educational expenses include transport expenses, uniforms and extra lessons. With the exception of other educational expenditure spent on foster children, this too varies positively with age. In general, there are more education-related expenditures on children staying with both parents than those living with at least one parent and the least is spent on foster children at all age levels except at age 8.

Some of these differences may be driven by the income disparities of children living under the various living arrangements. Figure A1 in the Appendix depicts the predicted value of educational expenditures when they are regressed on age and household income per capita. The graphs confirm

that less is spent on the education of foster children than on children living with their mothers at each age level, who in turn have less invested in them compared to children staying with both their parents.

Figure 2: Educational Expenditures by Living Arrangement and Age



Source: Own calculation using CAPS from the household roster in Wave 1
Note: The mean expenditure at each age level and for children living under different living arrangements is calculated. The data are weighted to account for sample design and household non-response.

Note that these variables do not measure the total amount spent on each child's education as expenditure on children's education coming from outside the household has not been captured. Hence, it is impossible to ascertain the actual difference in educational expenditures between foster and biological children with the data available from the household roster. Given that many children who live with single parents also get remittances from outside the household, it is difficult to predict whether the disparity in total investment between foster and biological children is wider or narrower than those depicted in Figure 2: **Educational Expenditures by Living Arrangement and Age.**

In this section, I show that even though resident guardians and other family members transfer material and non-material resources to foster children, the financial investment in them trails that of biological children at most age levels. On the other hand, material investment in foster children may be relatively low because absent parents continue to support their children. In the next section, I begin to examine whether the deficit in financial support of the households in which children live and the lower level of involvement of foster children's biological parents affect the outcome of interest, namely, attainment at school.

4.1.4 School Attainment

Until this point, I have described the living arrangements of children, the extent to which absent parents are still involved and the degree to which family members or resident guardians parent foster children. In this section, I turn to the relative grade attainment of children in the household roster,

which is the outcome of the material and non-material support offered to foster children relative to other children.

Table 6: School Outcomes by Age Level presents enrolment rates, grade completion rates and the proportion of children at each age level between the ages of 7 and 17 who are behind in their grade attainment. I present information about the proportion of children who are behind a grade given their age in this section because it is easier to visually compare children's grade attainment this way.[21]

Table 6: School Outcomes by Age Level shows that enrolment rates are above 90% for children up until age 15, but are slightly lower among 16 and 17-year olds. Since there is little variation in enrolment and it is very high, enrolment is not ideal as a measure of performance at school. Most of the variance in delayed schooling has instead been found to arise from grade repetition so it likely that grade completion is a better measure of school outcomes (Anderson et al, 2001; Anderson and Lam 2003).

About half of the 7 year old children have already completed Grade 1 implying that they started school when they were 5 and turned 6 in Grade 1. Other than the 12- year olds, children under the age of 14 have completed on average at least as much as they should have given their age. Conversely, children, who are older than 14, have completed on average fewer grades than the required number for their age level. Close to one third of the 14-year olds are still enrolled in primary school. Furthermore, just one half of the seventeen year olds have completed Grade 10.

A preliminary comparison between the educational outcomes of foster children and biological children at all age levels is presented in Figure 3: **School Outcomes by Living Arrangement**. Again, because there are too few children who stay with their fathers, their schooling outcomes are not included in the graphs of enrolment and grade progression. All the graphs are weighted to account for sample design and household non-response.

The bar chart in Panel A of Figure 3: **School Outcomes by Living Arrangement**, depicting enrolment rates across living arrangements, demonstrates that enrolment is relatively high for 8-15 year olds under all living arrangements. A higher proportion of the 16 and 17 year olds living with both their parents are enrolled compared to children staying with only their mothers and foster

[21]Information about the proportion of children who lag behind at school is presented only for children over the age of 8 since 7 year olds did not yet have a chance to fall behind at school. Most interviews for Wave 1 occurred between August and November of 2002 when most children would have already had their birthdays. In view of the fact that South African children typically turn six or seven in their first grade, many first graders would have been seven at the time they were interviewed. This variable is slightly conservative since children who started school at age five but who later repeated grades or dropped out are not captured as being behind at school.

children. Panels B and C of Figure 3: **School Outcomes by Living Arrangement** demonstrate progress through school. It appears that children living with both parents of all ages have progressed through school faster than children who live with just their mothers and foster children. By age 17,

Table 6: School Outcomes by Age Level

	Enrolment		Grade Completion		Behind in Grades	
Age	Mean	SE	Mean	SE	Mean	SE
7	0.93	0.02	0.51	0.09		
8	0.97	0.01	1.40	0.07	0.08	0.02
9	0.97	0.01	2.40	0.05	0.12	0.02
10	0.97	0.01	3.24	0.06	0.18	0.02
11	0.98	0.01	4.20	0.06	0.21	0.02
12	0.97	0.01	4.92	0.08	0.29	0.03
13	0.96	0.01	5.97	0.06	0.25	0.02
14	0.95	0.01	6.76	0.06	0.32	0.02
15	0.91	0.01	7.54	0.07	0.37	0.02
16	0.83	0.02	8.42	0.06	0.47	0.02
17	0.75	0.02	8.92	0.08	0.57	0.02

Source: Own calculation using CAPS data from the household roster in Wave 1
Note: The data are weighted to account for sample design as well as household non-response.

over 60% of the foster children and children who live with their mothers are behind by at least one grade. At all but three age levels, more foster children than children who live with their mothers fall behind at school.

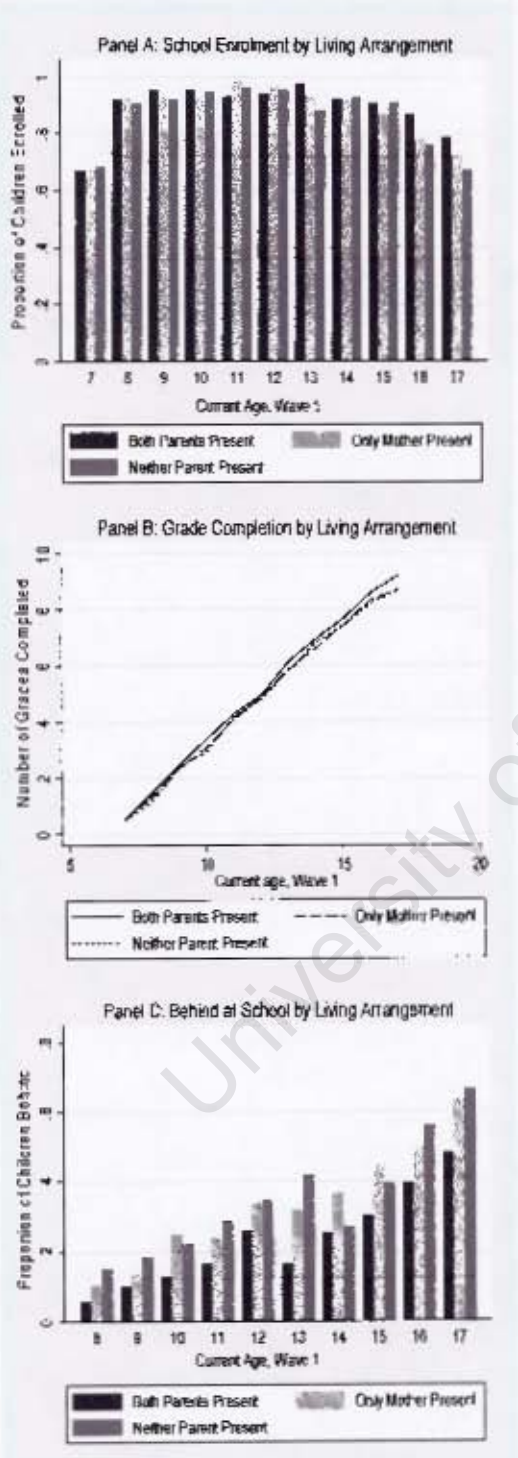
Graphs depicting the grade attainment of enrolled children are in Figure A2 in the Appendix. Grade progression of enrolled children under the various living arrangements follow a similar pattern to the grade progression of all children, even at ages 16 and 17 when enrolment is comparatively low. However, the difference between enrolled foster children and enrolled children who stay with their mothers is wider at age 17.[22]

The narrative emerging from these basic comparisons is that foster children appear to be performing poorly relative to children who stay with both their parents and slightly worse than children who stay with their mothers across most of the age distribution. The findings are likely to be biased without considering more information about foster children, their biological parents, and the characteristics of the households in which they live. For the rest of Part 4, I examine whether foster children are behind at school by accounting for factors that are correlated with children's living arrangements. In Section

[22]This may suggest that many of the 17-year old children who live with just their mothers and are behind at school, are not enrolled. Alternatively, 17-year old foster children who are not enrolled are not amongst those who have completed fewer grades than expected given their age.

4.2, I describe the multivariate approach I use to compare children's educational attainment based on cross-sectional data from the household roster in Wave 1 of CAPS.

Figure 3: School Outcomes by Living Arrangement



Source: Own calculation using CAPS data from the household roster in Wave 1

Note: The bar chart in Panel A is the proportion of children who are enrolled at each age level by living arrangement. The graph in Panel B depicts the average grade completion of children living under the various living arrangements and the bar graph in Panel C is the proportion of children who are behind at school. The data are weighted to account for sample design and household non-response.

4.2. METHOD

Using the cross-sectional data from the household roster collected in Wave 1, I examine the differences in grade completion. Grade completion measures cumulative performance over time. It also cannot be used to determine whether children fell behind as a result of dropping out or grade repetition. Grade completion is often estimated by ordinary least squares; however, there are a number of problems with this: grade completion is non-negative, it is a discrete variable, there is right censoring and there are likely to be probability spikes at 0, grade 7, grade 10 and grade 12. King and Lillard (1983, 1987) suggest the use of a censored ordered probit model. Despite these problems, I use OLS to estimate grade attainment in order to compare the results with within-effects estimates.

Four specifications of living arrangements are used to examine the educational outcomes of foster children relative to other children. In the first specification, foster children are compared to all biological children. The previous section showed that biological children under various living arrangements differ. Therefore, in the second specification, dummy variables representing children living with only their mothers and only their fathers are also included. The base category includes children who live with both parents. As all the categories are mutually exclusive, the coefficient on the foster child dummy variable represents the difference in the grade attainment between foster children and only those children who reside with both their parents.

For the first specification of living arrangements, I fit a regression of this form:

$$y_i = \beta_0 + D_N N_i + \beta_3 \text{Household}_i + \beta_4 \text{Individual}_i + \varepsilon_i \,, \qquad (1)$$

where *i* denotes children between the ages of 7 and 17 and N_i represents whether the child is a non-biological/foster child. D_N represents the difference in the grade attainment between foster children and biological children. For the second specification, I fit the regression:

$$y_i = \beta_0 + D_N N_i + D_M M_i + D_F F_i + \beta_3 \text{Household}_i + \beta_4 \text{Individual}_i + \varepsilon_i \,, \qquad (2)$$

where M_i and F_i are the explanatory dummy variables representing whether the child stays only with their mother or stays with only their father respectively. D_N now represents the difference in the grade attainment between foster children and children who stay with both parents. The interpretation of D_M and D_F is similar.

Foster children are comprised of double orphans, children with two absent living parents, maternal orphans with absent living fathers and paternal orphans with absent living mothers. As explained in

the literature review, the type of foster child is relevant in so far as it is a proxy for possible endogeneity. For example, it is more likely that foster children with two absent parents than double orphans are sent away to improve their access to education.[23] For this reason, I also compare each type of foster child firstly to all other biological children and secondly, to the various types of biological children. I therefore fit the following regressions:

$$y_i = \beta_0 + I_{BA}BA_i + I_{BD}BD_i + I_{MAFD}MAFD_i + I_{FDMA}FDMA_i + \beta_3 Household_i + \beta_4 Individual_i + \varepsilon_i , \quad (3)$$

$$y_i = \beta_0 + I_{BA}BA_i + I_{BD}BD_i + I_{MAFD}MAFD_i + I_{FDMA}FDMA_i + D_M M_i + D_F F_i + \beta_3 Household_i + \beta_4 Individual_i + \varepsilon_i , \quad (4)$$

where BA_i, BD_i, $MAFD_i$ and $FAMD_i$ are the explanatory dummy variables representing whether the foster child has two absent parents, two deceased parents, an absent mother and deceased father or an absent father and deceased mother. In the first equation, the grade attainment of each type of foster child is compared to the grade attainment of all biological children. In the second equation, when dummy variables M_i and F_i are added, the base category is again foster children who live with both parents.

Controlling for observable factors eliminates bias resulting from a correlation of those variables with being a foster child. Household level controls include the number of children in the household, the number of adults in the household, the presence of a pensioner, income per capita, the average education of adults in the household and dummy variables representing households' long run socioeconomic status . Individual level controls are the population group the child belongs to, whether or not they are an orphan, their age, gender and the amount spent on their school fees and other education-related expenses.

There may be a correlation between the probability of being a foster child and unobservable factors that affect education at a household level. Factors such as the learning environment or stability of the household where children live may be crucial determinants of achievement at school. Bias caused by a correlation with unobservable factors at a household level can be mitigated by using household fixed effects models.

[23]Double orphans might have been foster children with a living absent parent before so they could also have been sent away to improve their education.

A household fixed effects analysis is run on grade attainment in order to compare biological and foster children living in the same household; the estimate is identified by using the variation in grade attainment across children within the same household. By doing this, one can control for both observable and unobservable household characteristics that are relevant for education. Household fixed effects models work as follows. The error term has unobservable variant and invariant components across households such that

$$\varepsilon_{ih} = \alpha_h + \mu_{ih}, \tag{5}$$

where α_h are characteristics that are invariant across all individuals in a household, capturing both observable and unobservable factors, and μ_{ih} are unobservable characteristics that differ by individual within each household. The identification assumption for consistency is that factors influencing why some households absorb foster children are captured by α_h (Akresh, 2004). The household fixed effects model using the first specification is:

$$Y_{ih} = \beta_0 + \alpha_h + D_N N_{ih} + \gamma \text{Individual}_{ih} + u_{ih} \tag{6}$$

Within effects estimates are obtained by subtracting the mean characteristics of the household from individual characteristics and then running an ordinary least squares estimation procedure. By subtracting the means, one is limiting the comparison to within households. When the household means are subtracted, α_h and β_0 are removed from the equation:

$$Y_{ih} - \overline{Y_h} = D_N(N_{ih} - \overline{N_h}) + \gamma\left(\text{Individual}_{ih} - \overline{\text{Individual}_h}\right) + (u_{ih} - \bar{u}_h) \tag{7}$$

where $\overline{Y_h}$ is the average value of the educational expenses or educational outcomes across all individuals i in household h, N_{ih} is a dummy variable representing foster children in household h and Indiv_{ih} are other observable individual characteristics which vary within households like age, gender and educational expenditures (Ardington and Leibbrandt, 2010). There is a large loss in power since estimates are only calculated from households in which there are both foster and other types of biological children.

Household fixed effects estimation procedures may suffer from selection bias, the direction of which is unknown. In the first instance, the households in which children are placed may have been chosen strategically and based on unobservable factors like whether or not they are close to good schools or whether the adults in the household provide a stable environment for children to learn. In this case, the difference in grade attainment between foster and biological children will be overestimated (Beegle et

al, 2007: 1267). On the other hand, if the education of all children is affected by the absorption of foster children, then the difference in grade attainment between biological and foster children in the household will be underestimated (Ardington and Leibbrant, 2010).

In the section that follows, the difference in grade attainment between foster and biological children is evaluated using an OLS estimation procedure. Household fixed effects regressions are then run on grade attainment to estimate the difference between foster and biological children living in the same household.

4.3. RESULTS

4.3.1. Basic Comparisons

Foster and biological children between the ages of 7 and 17 are compared to one another using an ordinary least squares estimation procedure with robust standard errors accounting for a correlation of unobservable factors between children in the same sampling cluster. Weights, employed to make the sample representative of the racial composition of Cape Town, account for sample design and unit non-response at the household level (Lam et al, 2008).[24] All regressions have a full set of indicators for age.

Table 7: Ordinary Least Squares results, Basic below presents the basic results for each specification of living arrangement. Panel A presents comparisons of foster children firstly to all other biological children (Column 1) and then to each type of biological child (Column 2). Panel B reports the results when all the various types of foster children are compared firstly to all other biological children (Column 3) and then to each type of biological child (Column 4).

Based on the first column, foster children have completed 0.233 fewer grades than biological children. Using the second specification, one can ascertain whether the disparity is similar between foster children and each type of biological child using Wald tests for joint significance. The biggest difference in the grade attainment is between foster children and children who live with both parents and those who live with their fathers; foster children have completed 0.305 and 0.318 fewer grades than these two groups respectively. Foster children also lag behind children living with their mothers though only by 0.112 grades and the difference is only significant at the 10% level.

[24] Because there is a low response rate in white areas and since the proportion of blacks in the country is much higher in the country than it is in Cape Town, areas that were mostly black or white were oversampled. Weights are used to make the sample representative of the racial demographics of Cape Town.

The third and fourth specifications distinguish between types of foster children. The results from the third specification show that double orphans fall behind all biological children by more than a grade. Children with two absent parents and paternal orphans with an absent mother have respectively completed 0.181 and 0.190 fewer grades respectively than biological children. The estimate of the difference in grade attainment between biological children and paternal orphans with absent mothers is however not statistically significant. Neither is the estimate of the difference between the grades of biological children and maternal orphans with absent fathers.

Using the fourth specification, all the estimates of the coefficients representing the difference between the grade attainment of the various types of foster children and children living with both their parents are larger than the estimates in the third specification, in which the foster children are compared to all biological children. Double orphans have completed significantly fewer grades than children who live with both their parents and with single parents. Double orphans have also completed more grades than each of the other types of foster children. The school outcomes of children with two absent living parents are only statistically different to those of children living with both parents and children staying with single fathers.

Table 7: Ordinary Least Squares results, Basic

Grade Completion	Panel A		Panel B	
	1	2	1	2
Foster Child	-0.233***	-0.305***		
	(0.0577)	(0.0619)		
Both Parents Deceased			-1.039***	-1.113***
			(0.308)	(0.309)
Both Parents Absent			-0.181***	-0.253***
			(0.0592)	(0.0623)
Mother Absent, Father Deceased			-0.190	-0.263
			(0.177)	(0.179)
Father Absent, Mother Deceased			-0.0728	-0.146
			(0.132)	(0.135)
Only Mother Present		-0.193***		-0.195***
		(0.0498)		(0.0499)
Only Father Present		0.0127		0.0122
		(0.0622)		(0.0622)
Gender	0.197***	0.193***	0.194***	0.189***
	(0.0411)	(0.0412)	(0.0411)	(0.0412)
Constant	8.853***	8.931***	8.856***	8.934***
	(0.0959)	(0.0959)	(0.0960)	(0.0960)
N	4,545	4,545	4,526	4,526
R-squared	0.850	0.851	0.851	0.852

Source: Own calculation using CAPS data from the household roster in Wave 1

Notes: All regressions include a full set of indicators for age. The data are weighted to account for sample design and household non-response. Robust standard errors are in parentheses, * p<0.05, ** p<0.01, *** p<0.001

Both foster and biological children may be single orphans. Table 8: OLS results with controls for parental death presents the results when controls for parental death are included in each of the specifications. There is only evidence that the death of fathers puts children behind at school. When controls for maternal and paternal death are included in the regression, the coefficients on the foster child dummy variable in Specifications 1 and 2 are smaller compared to those in Table 7: Ordinary Least Squares results, Basic , but they are still statistically significant. This suggests that part of the difference between foster and biological children in Table 7: Ordinary Least Squares results, Basic can be explained by parental death.

Based on the second specification, foster children lag behind children living with single parents by not much less once controls for parental death are used.[25] The reason is because many of the biological

Table 8: OLS results with controls for parental death

Grade Completion	Panel A		Panel B	
	1	2	1	2
Foster Child	-0.186***	-0.240***		
	(0.0549)	(0.0598)		
Both Parents Deceased			-0.836**	-0.926***
			(0.325)	(0.333)
Both Parents Absent			-0.203***	-0.254***
			(0.0592)	(0.0623)
Mother Absent, Father Deceased			0.0418	-0.122
			(0.187)	(0.192)
Father Absent, Mother Deceased			-0.127	-0.104
			(0.172)	(0.191)
Only Mother Present		-0.154***		-0.164***
		(0.0521)		(0.0525)
Only Father Present		0.0625		0.0235
		(0.0720)		(0.0733)
Mother Deceased	-0.133	-0.191	0.0309	-0.0441
	(0.112)	(0.121)	(0.107)	(0.128)
Father Deceased	-0.274***	-0.189**	-0.257***	-0.144*
	(0.0780)	(0.0817)	(0.0799)	(0.0845)
Gender	0.197***	0.194***	0.193***	0.190***
	(0.0410)	(0.0412)	(0.0411)	(0.0412)
Constant	8.900***	8.947***	8.892***	8.942***
	(0.0948)	(0.0954)	(0.0944)	(0.0954)
N	4,526	4,526	4,526	4,526
R-squared	0.851	0.852	0.852	0.852

Source: Own calculation using CAPS data from the household roster in Wave 1

[25] The difference in the grade attainment between foster children and children staying with single mothers and children living with single fathers are 0.086 and 0.3025 grades respectively. The difference in completed grades between foster children and children staying with single mothers is statistically insignificant.

Notes: All regressions include a full set of indicators for age. The data are weighted to account for sample design and household non-response. Robust standard errors are in parentheses, * p<0.05, ** p<0.01, *** p<0.001

children staying with single parents are maternal or paternal orphans as well. In the fourth specification, except for children with two non-resident living parents, the differences between each type of biological child and each type of foster child are smaller than in Table 7: Ordinary Least Squares results, Basic.

The results of this section show that foster children fall behind children who live with both parents and with their fathers even, after parental death is controlled for. There is evidence that double orphans fall behind relative to all biological children and all other types of foster children even though there are relatively few double orphans in the sample. Foster children with two absent parents have completed fewer grades than children staying with both parents and those staying with only their fathers. There are no statistically significant differences between the school outcomes of biological children and the two other types of foster children. These findings suggest that the various categories of foster children do not perform homogeneously. In the next section, I examine the case when other characteristics of foster children, and the households in which they stay, are accounted for.

4.3.2. Accounting for Household Characteristics

The coefficients in Table 8: OLS results with controls for parental death do not account for other characteristics of the children that are relevant factors in the school production function. In this section, I will examine what happens when household and individual characteristics are accounted for. Specifically, controls for household composition, the socioeconomic status of the household, and an indicator for coloured children are added. Although the results of the first and third specifications with controls are included in Table 9: OLS results with household-level controls, I focus mainly on the results from the second and fourth specifications in which the base category is children who live with both their parents.

The results in all four specifications demonstrate that historical differences persist; coloured children outperform black children by a third of a grade[26]. Furthermore, both variables that measure the household's socioeconomic status, namely the log of income per capita and the mean education of the household's adults are positively correlated with children's grade attainment.[27]

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[26] The reason is that the black school environment remains weak at translating ability and resources into performance. In addition to poor teaching and management, Lam et al (2008) argue that another reason for this is that progression through these schools is not closely associated with ability and learning, suggesting that there is a stochastic component to grade repetition.

[27] Based on data from SACMEQ III (Southern African Consortium for Monitoring Educational Quality), which is an education survey of randomly selected schools across 15 countries, poor students perform worse on maths and reading scores compared to wealthy students and the variation in performance is high (Spaul, 2011).

In terms of the effect of the presence of other household members, only pensioner presence has a statistically significant association with grade attainment. The relationship between pensioner

Table 9: OLS results with household-level controls

Grade Completion	Panel A		Panel B	
	1	2	1	2
Foster Child	-0.124**	-0.143**		
	(0.0551)	(0.0589)		
Both Parents Deceased			-0.757**	-0.744**
			(0.363)	(0.366)
Both Parents Absent			-0.115*	-0.142**
			(0.0589)	(0.0611)
Mother Absent, Father Deceased			-0.0638	-0.150
			(0.192)	(0.198)
Father Absent, Mother Deceased			-0.0841	-0.0104
			(0.172)	(0.187)
Only Mother Present		-0.0733		-0.0873*
		(0.0465)		(0.0469)
Only Father Present		0.109		0.0791
		(0.0712)		(0.0698)
Mother Deceased	-0.0979	-0.156	0.0579	-0.0444
	(0.113)	(0.123)	(0.127)	(0.139)
Father Deceased	-0.0829	-0.0395	-0.0371	0.0219
	(0.0753)	(0.0784)	(0.0744)	(0.0789)
No. Children	0.00331	0.00272	0.00396	0.00354
	(0.0125)	(0.0124)	(0.0124)	(0.0124)
No. Adults	-0.0194	-0.0202	-0.0176	-0.0191
	(0.0190)	(0.0192)	(0.0193)	(0.0194)
Pensioner Present	0.184***	0.192***	0.183***	0.193***
	(0.0573)	(0.0582)	(0.0571)	(0.0578)
Mean Adults' Education	0.0673***	0.0686***	0.0672***	0.0685***
	(0.00978)	(0.00987)	(0.00986)	(0.00999)
Log Income per Capita	0.120***	0.112***	0.121***	0.113***
	(0.0259)	(0.0262)	(0.0260)	(0.0264)
Coloured	0.335***	0.337***	0.330***	0.332***
	(0.0465)	(0.0464)	(0.0464)	(0.0465)
Gender	0.224***	0.223***	0.221***	0.220***
	(0.0390)	(0.0391)	(0.0391)	(0.0392)
Constant	7.280***	7.341***	7.263***	7.332***
	(0.190)	(0.185)	(0.190)	(0.186)
N	4,476	4,476	4,476	4,476
R-squared	0.863	0.863	0.863	0.864

Source: Own calculation using CAPS data from the household roster in Wave 1

Notes: All regressions include a full set of indicators for age. The data are weighted to account for sample design and household non-response. Robust standard errors are in parentheses, * p<0.05, ** p<0.01, *** p<0.001

Table 10: OLS results with household-level controls by race

Grade Completion	2		4	
	Black	Coloured	Black	Coloured
Foster Child	0.0354	-0.226***		
	(0.0900)	(0.0760)		
Both Parents Deceased			-0.710***	-1.436
			(0.226)	(1.128)
Both Parents Absent			0.0355	-0.209***
			(0.0971)	(0.0790)
Mother Absent, Father Deceased			0.168	-0.469
			(0.171)	(0.346)
Father Absent, Mother Deceased			-0.268	0.137
			(0.207)	(0.237)
Only Mother Present	-0.0520	-0.0749	-0.0619	-0.0950
	(0.0675)	(0.0597)	(0.0666)	(0.0591)
Only Father Present	0.309***	0.0254	0.210*	0.0295
	(0.110)	(0.0960)	(0.112)	(0.0830)
Mother Deceased	-0.241*	-0.141	0.204	-0.153
	(0.139)	(0.211)	(0.142)	(0.150)
Father Deceased	0.0763	-0.143	0.110	-0.0280
	(0.0964)	(0.126)	(0.109)	(0.113)
Household Controls	Yes	Yes	Yes	Yes
N	1,998	2,478	1,998	2,478
R-squared	0.838	0.875	0.839	0.875

Source: Own calculation using CAPS data from the household roster in Wave 1
Notes: All regressions include a full set of indicators for age and a dummy variable for female children. The data are weighted to account for sample design and household non-response. Robust standard errors are in parentheses, * p<0.05, ** p<0.01, *** p<0.001. Household-level controls include the numbers of adults and children in the household, a dummy variable representing the presence of pensioners, mean education level of adults in the household, log income per capita and population group.

Starting with the second specification, coloured foster children have completed fewer grades than all the various types of coloured biological children, though the difference in completed grades between them and children living with just their mothers is only significant at the 10% level. The coefficient representing the difference in grade attainment between black foster children and black children who live with both parents is positive but statistically insignificant. Maternal death is significantly worse than paternal death in the black sample but not in the coloured sample in which few children have been orphaned by their mothers; just 61 coloured children have lost their mothers.

Based on the fourth specification, black double orphans perform worse that all other types of biological children and foster children. Although the difference between coloured double orphans and children living with both parents is larger than in the black sample, it is statistically insignificant. This is likely due to the small number of coloured double orphan; there were just nine of them in Wave 1. Coloured children with two absent parents do perform significantly worse than children who live with

both parents and those living with single fathers. The same effect is not found in the black sample, suggesting that black children with two absent parents do not do any worse than any of the black biological children.

In this section, I have shown that once measurable household characteristics are controlled for, the difference in school outcomes between the various types of foster and biological children decreases. Therefore, part of the difference in grade attainment calculated in Table 8: OLS results with controls for parental death is due to differences in the household characteristics of foster and biological children that are correlated with performance at school, in particular income per capita. In the next section, I examine what happens to the estimates of the differences in educational attainment between foster and biological children when unobservable differences among households are controlled for.

4.3.3 Household Fixed Effects

Unobservable household-level factors are accounted for in the household fixed effects analysis, which captures the difference in grade attainment between foster children and biological children living in the same household. The results of the household fixed effects analysis are presented in Table 11: Household Fixed Effects results.

Because within-effect estimates are identified from the variation within households, there is a large loss of information. This loss of information will be accompanied by larger standard errors, which explains why the coefficients representing differences between foster children and biological children living in the same household are larger than before, but not statistically significant.

Based on the second specification, foster children fall behind children staying with both parents and those living with their mothers by more than when just household controls are used. This suggests that there are unobservable differences in the household characteristics of foster children and these biological children, which previously caused an upwards bias in the estimates reported in Table 9: OLS results with household-level controls. The difference between foster children and those living with just their fathers is smaller than in Section 4.3.2, and only the difference between foster children and those living with both parents is statistically significant.

In the fourth specification, the household fixed effects estimates of the coefficients representing the differences in grade attainment are larger than when just observable household characteristics are controlled for. Compared to children living with both parents in the same household, double orphans lag behind by more than a grade. They have also completed fewer grades than children with co-

Based on the second specification, foster children do not lag behind the various groups of biological children by as much once educational expenditures are accounted for. The difference between foster children and children living with both parents in hybrid households is only significant at the 10% significance level. Therefore, part of the backlog in grade attainment of foster children may be explained by the lower investment in foster children's education by household managers in hybrid households.

When controls for educational expenditures are included in the fourth specification, the differences in the grade attainment between double orphans and biological children increase. On the other hand, children with two absent parents and children who stay with both parents is smaller than before suggesting that part of the differences in grade attainment can be explained by a lower level of investment by household managers in foster children than in biological children.

Table 12: Household Fixed Effects results by race presents the household fixed effects results by racial category. In the second specification, there is evidence that black children with deceased mothers have completed 0.436 fewer grades than children with two co-resident parents living in the same household. The estimate is larger than when observable household characteristics are controlled for. There is no evidence of the same relationship in the coloured sample.

I start by comparing black and coloured foster children to each type of biological child (Specification 2). The household fixed effects estimates of the coefficients representing the differences between both black and coloured foster children and children living with both parents are larger (in absolute value) than the ordinary least squares estimates. However, the estimate is only significant in the coloured sample. Coloured foster children have completed half a grade less than children with two co-resident parents in hybrid households.

Turning to the fourth specification, compared to the results of the OLS estimation procedure, the estimated differences between all the various types of coloured foster children and children who live with both parents are larger using household effects. Coloured double orphans have completed more than two fewer grades than all the various types of biological children. Coloured children with two absent parents have completed 0.479 fewer grades than coloured children who live with both parents.[29]

[29]The school outcomes of coloured maternal orphans with absent fathers are worse and those of paternal orphans with absent mothers are better relative to children living with both parents though the differences remain statistically insignificant.

Table 12: Household Fixed Effects results by race

Grade Completion	Specification 2		Specification 4	
	Black	Coloured	Black	Coloured
Foster Child	-0.132	-0.490***		
	(0.198)	(0.175)		
Both Parents Deceased			-0.443	-2.418**
			(0.530)	(1.069)
Both Parents Absent			-0.166	-0.482***
			(0.220)	(0.175)
Mother Absent, Father Deceased			-0.125	-0.494
			(0.257)	(0.657)
Father Absent, Mother Deceased			-0.0645	0.0739
			(0.533)	(0.649)
Only Mother Present	-0.314	-0.236	-0.338	-0.237
	(0.224)	(0.164)	(0.221)	(0.168)
Only Father Present	-0.237	-0.246	-0.305	-0.228
	(0.337)	(0.158)	(0.406)	(0.168)
Mother Deceased	-0.436**	0.249	-0.311	0.462
	(0.209)	(0.496)	(0.483)	(0.355)
Father Deceased	0.0775	-0.295	0.136	-0.0892
	(0.153)	(0.254)	(0.195)	(0.246)
Gender	0.292***	0.244***	0.293***	0.237***
	(0.0740)	(0.0666)	(0.0736)	(0.0669)
Constant	8.494***	9.217***	8.506***	9.162***
	(0.180)	(0.138)	(0.184)	(0.135)
No. Children	2,035	2,491	2,035	2,491
R-squared	0.877	0.902	0.877	0.904
No. Households	1,118	1,403	1,118	1,403

Source: Own calculation using CAPS data from the household roster in Wave 1
Notes: All regressions include a full set of indicators for age. The data are weighted to account for sample design and household non-response. Robust standard errors are in parentheses, * p<0.05, ** p<0.01, *** p<0.001

There are no statistically significant differences between the various types of black biological children and foster children in hybrid households, including between black double orphans and the children with whom they live. The difference between black double orphans and children who live with parents in hybrid households are smaller than when just observable household characteristics are controlled for. Therefore, unobservable differences in the household characteristics of double orphans and biological children explain why black double orphans appeared to lag behind in Section 4.3.2.

The household fixed effects results, when educational expenditures on each child are controlled for among black and coloured 7-17-year olds, are presented in Table A9 in the Appendix.[30] Maternal death is less strongly correlated with grade attainment in the black sample of children and the coefficient is only significant at the 10% level. Therefore, part of the gap in grade attainment of black

[30]In both the black and coloured samples, living with only one's mother is now significantly correlated with a lower grade attainment relative to children living with both and the coefficients are larger than when educational expenditures were not included in the regressions.

maternal orphans can be explained by a relatively low level of investment in their education by the household managers with whom they live.

When educational expenditures are accounted for, the changes in the estimates in the coloured sample are similar to the changes in the full sample; the differences between coloured double orphans and biological children increase, whereas the difference in the grade attainment between coloured children with two absent parents and those who live with co-resident parents decrease.

In this section, I identify the relative grade attainment of foster children using variation within households. The results show that firstly, the household fixed effects estimates of differences in grade attainment between foster children and children with two co-resident parents are larger compared to the OLS estimates. Double orphans lag behind all biological children by more than before, and relative to biological children with two co-resident parents, children with two absent parents progress through school slower than before.

Secondly, variability in educational expenditures explains part of the lower grade attainment of children with two absent parents relative to biological children. It does not explain the slower progress of double orphans, suggesting that current material investment into their education is not why double orphans have a relatively low educational level.

Thirdly, there is only evidence that there are differences in the grade attainment among foster and biological children in hybrid households in the coloured sample but not in the black sample of 7-17 year olds. The OLS estimates of the difference between black double orphans and black biological children can be explained by unobservable differences between the households in which they live.

4.1.4. The Sample of Young Adults (YAs)

Since Section 5, which uses the age-based panel dataset, is only about the Young Adults (YAs), who make up a subset of this sample, the main results in this section are replicated for the YA sample only. This is done to ensure that if there is any discrepancy between the results from Section 4 and Section 5, it is not due to the difference in the samples. There is more information about living arrangements and education about the YAs. To check the robustness of these results, I compare the differences in standardised test scores and examine whether grade attainment is correlated with the proportion of one's life spent with one's parents.

The OLS estimates of the differences in grade attainment between foster and biological children controlling for household-level characteristics using all four specifications are presented in Table 13: OLS results with household level controls on the 14-17 year old YA sample from Wave 1. The results are also replicated for each racial group and presented in Table A4: OLS results with household-level controls by race, Specifications 1 and 3. The differences are not estimated using household fixed effects since there are few hybrid households with foster and biological YAs.

Compared to the ordinary least square results based on all the children in the household roster (Section 4.1.2), the findings based on the young adult sample are qualitatively similar. Firstly, foster YAs perform worse relative to YAs staying with both their parents and those staying with only their fathers. Secondly, double orphans and YAs with two absent parents lag behind biological children with two co-resident parents. There are three main differences. Firstly, the estimates of the coefficients are larger relative to those based on the full sample of children. Secondly, maternal orphans with absent fathers do significantly worse than YAs living with both parents. A likely reason for these differences is that most of the variation in grade attainment occurs after the age of 13 and all

Table 13: OLS results with household level controls on the 14-17 year old YA sample from Wave 1

Grade Completion	Panel A		Panel B	
	1	2	3	4
Foster Child	-0.241**	-0.336***		
	(0.111)	(0.118)		
Both Parents Deceased			-0.772	-1.076*
			(0.625)	(0.630)
Both Parents Absent			-0.229*	-0.314**
			(0.130)	(0.131)
Mother Absent, Father Deceased			-0.153	-0.357
			(0.339)	(0.349)
Father Absent, Mother Deceased			-0.422*	-0.603**
			(0.241)	(0.281)
Only Mother Present		-0.184**		-0.203***
		(0.0740)		(0.0730)
Only Father Present		-0.0727		-0.163
		(0.129)		(0.129)
Mother Deceased	-0.0237	-0.0317	0.217	0.315
	(0.202)	(0.219)	(0.179)	(0.211)
Father Deceased	-0.177	-0.0933	-0.152	-0.0313
	(0.133)	(0.139)	(0.136)	(0.143)
Household-level Controls	Yes	Yes	Yes	Yes
N	1,897	1,897	1,897	1,897
R-squared	0.394	0.396	0.394	0.397

Source: Own calculation using CAPS data from the young adult sample and the household roster in Wave 1
Notes: All regressions include a full set of indicators for age and a dummy variable for female children. The data are weighted to account for sample design as well as individual and household non-response. Cluster robust standard errors are in parentheses, * p<0.05, ** p<0.01, *** p<0.001. Household-level controls include

the numbers of adults and children in the household, a dummy variable representing the presence of pensioners, mean education level of adults in the household, log income per capita and population group.

the YAs are between the ages of 14 and 17. Thirdly, even though there is a large difference between the grade attainment of double orphans and biological children, the estimate is statistically insignificant.

The results in Table A10 confirm that the grade attainment of black foster YAs is not statistically different to that of black biological children. Like in the sample of children from the household roster, coloured foster YAs fall behind coloured YAs living with both parents and those living with their fathers, and there are no statistically significant differences between the coloured double orphans and any of the biological children. Unlike in the full sample of children, coloured maternal orphans with absent fathers also perform badly, though the coefficient representing their performance, relative to YAs living with both parents, is only significant at the 10% level.

Grade completion as a measure of achievement at school is problematic in that schools have varying levels of quality and standards of assessment. A numeracy and literacy test (LNE) administered to the YAs in Wave 1 was used to compare the manifest ability of foster and biological YAs. To check the robustness of the results, the differences in scores on the literacy and numeracy (LNE) test between foster and biological YAs are also estimated using ordinary least squares. The results, using both the second and fourth specifications, are presented on Table 14: OLS on LNE scores among 14-17 year old YAs with household-level controls, Wave 1.

There is one difference between the results based on grade attainment and the results based on differences in LNE scores across living arrangements; foster YAs score significantly lower than YAs who live with both parents, but they do not do any worse than YAs who live with single parents. The results are similar in the following ways; (1) YAs with two absent living parents score lower than YAs with two co-resident parents, and, (2) maternal orphans with absent living fathers score significantly lower on the LNE test than all biological children.

In Table A61: OLS on LNE scores among 14-17 year old YAs with household-level controls by race, Wave 1, the differences in LNE scores are examined for each race group. The results confirm the findings about the differences in grade attainment between foster and biological YAs in one respect; there is no evidence that black foster YAs and black biological YAs perform differently on the LNE test.

The differences in LNE scores found between coloured foster and biological YAs are dissimilar to the differences in grade attainment found amongst them. Firstly, coloured maternal orphans with absent fathers do worse than YAs living with both or one parent as well as the other foster children, including double orphans. Secondly, coloured paternal orphans with absent mothers compare favourably with YAs who live with single parents. Finally, coloured YAs with two absent parents do not perform significantly worse on the LNE test relative to YAs living with both parents.

Table 14: OLS on LNE scores among 14-17 year old YAs with household-level controls, Wave 1

	Panel A		Panel B	
	1	2	3	4
Foster Child	-1.009*	-1.429**		
	(0.579)	(0.666)		
Both Parents Deceased			1.190	0.140
			(1.973)	(2.044)
Both Parents Absent			-1.507**	-1.738**
			(0.749)	(0.786)
Mother Absent, Father Deceased			1.707	1.202
			(1.128)	(1.252)
Father Absent, Mother Deceased			-3.135*	-3.903**
			(1.783)	(1.844)
Only Mother Present		-0.767		-0.495
		(0.507)		(0.512)
Only Father Present		-0.452		-0.723
		(0.864)		(0.873)
Mother Deceased	-0.529	-0.511	-0.133	0.413
	(0.832)	(0.870)	(1.402)	(1.486)
Father Deceased	-0.641	-0.307	-1.531**	-1.255*
	(0.546)	(0.572)	(0.649)	(0.688)
No. Children	0.00395	0.00892	0.00975	0.0160
	(0.142)	(0.144)	(0.141)	(0.142)
No. Adults	-0.00862	-0.0645	-0.0413	-0.0831
	(0.180)	(0.190)	(0.183)	(0.190)
Pensioner Present	0.994**	1.137**	1.059**	1.171**
	(0.466)	(0.464)	(0.470)	(0.468)
Mean Adults' Education	0.628***	0.639***	0.623***	0.629***
	(0.0895)	(0.0903)	(0.0901)	(0.0903)
Log Income per Capita	1.787***	1.722***	1.762***	1.733***
	(0.277)	(0.280)	(0.275)	(0.276)
Coloured	3.152***	3.161***	3.200***	3.187***
	(0.525)	(0.528)	(0.518)	(0.521)
Gender	0.574	0.592	0.572	0.580
	(0.383)	(0.383)	(0.384)	(0.384)
N	1,767	1,767	1,767	1,767
R-squared	0.240	0.242	0.245	0.245

Source: Own calculation using CAPS data from the young adult sample and the household roster in Wave 1
Notes: All regressions include a full set of indicators for age. The data are weighted to account for sample design as well as individual and household non-response. Cluster robust standard errors are in parentheses, * p<0.05, ** p<0.01, *** p<0.001

A likely explanation for the disparity between the findings based on grade attainment and those based on LNE scores in the coloured sample is that LNE scores can pick up more than just progression through school; it can also be used to discern between strong learners and weak learners who just scrape by each year[31].

Foster children may differ in that some will have been living with their parents from birth while others just moved in. Furthermore, many biological children may have previously been fostered. The proportion of time that children have lived with their parents can be calculated from information collected about the living arrangements of the YAs in the life calendar.

Table 16: The proportion of YAs under each living arrangement by age, Waves 1-4 and Table A12 in the Appendix present the results when the proportion of time spent living with parents since birth is regressed on grade attainment in the full sample and within each racial group respectively.[32] Three different specifications are used. In the first case, only variables representing the proportion of time spent living with one's mother and one's father are included. In the second specification, I include a variable representing the proportion of time that YAs spent with both parents. Finally, the proportions of YAs' lives spent with other household members are examined as well. Household and individual level controls are included in all regressions.

Table 15: History of co-residence among 14-17 year old YAs, Wave 1

Grade Attainment	Each Parent	Both Parents	Other Household Members
Proportion of Life with Father	0.0697	-0.545**	-0.426
	(0.0755)	(0.261)	(0.276)
Proportion of Life with Mother	0.189	0.0665	0.174
	(0.144)	(0.150)	(0.155)
Proportion of Life with Parents		0.658**	0.584**
		(0.258)	(0.268)
Proportion of Life with Guardian or Alone			0.00286
			(0.178)
Proportion of Life with Paternal Grandparents			0.385***
			(0.140)
Proportion of Life with Maternal Grandparents			0.294***
			(0.0973)
Mother Dead	-0.178	-0.125	
	(0.183)	(0.175)	(0.161)
Father Dead	-0.141	-0.150	-0.130
	(0.128)	(0.128)	(0.124)

[31] Alternatively, it is possible that grade repetition has a stochastic component to it especially in poor schools so grade completion does not accurately reflect academic performance (Lam et al, 2008). Given that coloured children generally do not attend the poorest schools, the first explanation is more likely.

[32] The dependent variables are continuous variables between the values of 0 and 1.

Household-level Controls	Yes	Yes	Yes
N	1,779	1,779	1,779
R-squared	0.426	0.428	0.432

Source: Own calculation using CAPS data from the young adult sample in Wave 1
Notes: All regressions include a full set of indicators for age and a dummy variable for female children. The data are weighted to account for sample design as well as individual and household non-response. Cluster robust standard errors are in parentheses, * p<0.05, ** p<0.01, *** p<0.001. Household-level controls include the numbers of adults and children in the household, a dummy variable representing the presence of pensioners, mean education level of adults in the household, log income per capita and population group.

When only variables representing time spent with YAs' mothers and fathers are included in the regression, none of the estimates are statistically significant in the full sample nor are they significant in either of the racial groups. When the variable measuring the proportion of time spent with both parents is included in the regression, the proportion of life spent with one's father is negatively correlated with grade attainment. The reason why the coefficient is negative is that the proportion of time spent living with fathers is highly correlated to the proportion spent with both parents, since in most cases, YAs spend less time with their fathers than their mothers. [33]

There is a positive and statistically significant correlation between grade attainment and the proportion of one's life spent with both parents. The difference is even larger in the coloured sample of YAs and it is statistically insignificant in the black sample. The coefficient representing the relationship between the proportion of YAs' lives spent with their mother and grade attainment is never statistically significant. These findings confirm that separation from both parents is disadvantageous but living apart from one's mother is not detrimental for progress at school.

In the last specification, variables representing the proportion of time spent with guardians, maternal grandparents and paternal grandparents are included. The relationship between grade attainment and the proportion of time spent with both parents is slightly weaker once these variables are included, presumably because grandparents fill the roles of parents when they are not around. The fraction of time spent with guardians or alone is not important though the proportion of YAs' lives spent with grandparents is positively correlated with grade attainment. Coloured grandparents also enhance children's educational attainment.

The findings in Table 15 and Table A12 appear to confirm the main results: Firstly, living with both one's parents is good for progress at school. Secondly, staying apart from one's mother is not

[33] The proportion of time spent living with both one's parents is the same as the proportion of time spent with the parent who had been around the least. If a father had been with his 14-year old daughter for 7 years and his ex-wife had lived with her for her entire life, then the proportion of the child's life spent with her father and the proportion of her life spent with both her parents will both be one half. The correlation coefficient between the proportion of time spent with fathers and with both parents is 0.965.

necessarily disadvantageous. Finally, living arrangements appear to matter for coloured YAs' attainment at school whereas there is little evidence that it does among black YAs.

4.1.5. Summary and Discussion

The results using cross-sectional data from Wave 1 of CAPS show; firstly, that fostering has a negative impact on grade attainment even when parental death is controlled for. Therefore, the negative effect of being fostered is not only due to the fact that a large proportion of foster children have been orphaned by one or both parents.

Secondly, foster children do not fall behind relative to all biological children; they have completed fewer grades than children who live with both their parents, and children who live just with their fathers. There is little evidence that foster children lag behind children who stay with their single mothers. A possible explanation for this can be inferred from the findings in Sections 4.12; firstly, many absent mothers are still involved in their children's lives.

Thirdly, foster children do not perform homogenously. Double orphans have completed fewer grades than all biological and other foster children even when unobservable household characteristics are accounted for, and children with two absent living parents have completed significantly fewer grades than children with two co-resident parents. There isn't evidence that maternal orphans with absent fathers and paternal orphans with absent mothers are statistically different to biological children based on information from the household roster. However, based on the 14-17 year old YAs, maternal orphans with absent fathers appear to have progressed slower than YAs who live with both parents.

The fourth finding based on the cross-sectional data is that the discrepancies in grade attainment between the various types of foster children and biological children are usually only evident amongst coloured foster children particularly if they live in the same household. Coloured double orphans and children with two absent parents have completed relatively few grades. While there is evidence that black double orphans also fall behind when household characteristics are controlled for, the household fixed effects estimates are statistically insignificant suggesting that the main reason they appeared to fall behind was due to unobservable differences between the households of double orphans and biological children.

Possible reasons for this include diverse cultural attitudes to fostering by black and coloured household managers, whether the decision to foster was endogenous (It was inferred from Section 4.1.1 that many black children with two absent parents come from the Eastern Cape to be schooled),

or different levels of involvement by children's biological parents (In Section 4.1.2, more black absent mothers were found to have had an influence on their children's performances than coloured absent mothers).

The estimates are larger when grade attainment is estimated using a household fixed effects estimation procedure, particularly in the coloured sample of children. Some of these differences can be explained by variation in the spending of household managers on biological and foster children's education. To some extent, the differences between children with two absent parents and children who live with both parents can be explained by the discrepancy in spending by the household managers. The gap in accumulated grades between double orphans and biological children however, cannot be explained by differences in education-related expenditures. This suggests that double orphans fall behind for reasons unrelated to the allocation of educational resources that they receive from household managers.

The results differ somewhat when examining LNE scores in the coloured sample probably as a result of LNE scores being more sensitive to differences in performance among YAs. I also find a positive relationship between grade attainment and the proportion of YAs' lives spent with parents in the full sample and coloured sample. Although the coefficients representing the relationship between school performance and the proportion of one's life spent living with one's mother are positive, they are always statistically insignificant.

To conclude, the main findings based on cross-sectional data suggest that being a foster child matters for their school performance, but it depends on the type of foster child that one is and who one is being compared to. Furthermore, it only appears to matter more in the coloured sample. In the next section, I will use the panel dataset to assess whether it is the unobservable differences between the various types of foster and biological children that are driving these differences.

5. A RETROSPECTIVE VIEW OF THE YAs

A major problem associated with the analysis in Section 4 based on cross-sectional data is that the difference in attainment at school may be due, not to children's statuses as foster children, but due to circumstances preceding the event of being fostered or other unobservable differences between foster and biological children; children may have previously fallen behind because they attended schools of a bad quality prior to being fostered. In this section, I examine the extent to which foster children fall behind relative to their performance when they lived with parents using the CAPS panel data.

5.1.1 DESCRIPTIVE STATISTICS

5.1.1 Data Description

This section is based on the retrospective panel data set using age as the time variable over which units are examined. Information about 4155 black and coloured young adults (YAs) when they were between the ages 7 and 17 is used. There are thus eleven years over which each YA is observed and 38 921 person-year observations.

Table 16: The proportion of YAs under each living arrangement by age, Waves 1-4 presents the numbers and proportions of YAs living under each of the 9 living arrangement categories. Information about the living arrangements of children before the age of 7 is presented in Table A13 in the Appendix. An increase in the proportion of YAs falling into a living arrangement category implies that more YAs move into that category than out and vice versa. Note that, with the exception of double orphans, it is possible to change categories more than once.

At all ages, the majority of the YAs live with both their parents or with single mothers. The proportion of the YAs who live with both their parents at age 7 was 53.21%. By age 17, it was just 37.59%. In contrast, the proportion of YAs living with single mothers increased from birth, especially between the ages of 10 and 17.

Even though most of the YAs who live with single mothers have an absent living father (even at birth, 1189 YAs with absent fathers lived with single mothers), there was a decrease in the proportion of YAs with single mothers and absent fathers between birth and age 17. Paternal death between the ages of 7 and 17 was the main reason why more YAs started to live with single mothers. More paternal orphans stay with single mothers than apart from them at all age levels.

At all ages, few YAs stay with single fathers. Most of those who do, have absent living mothers. The proportion of YAs who live with only their fathers also increase between ages 7-17. Unlike in the previous case, there are more maternal orphans who live apart from their fathers than maternal orphans who stay with their fathers at each age level.

Already at birth, 282 YAs were foster children (See Table A13). There was a large increase in the number of foster YAs in the sample before the age of 7 and then again between the ages of 14 and 17. By age 17, 847 (24.17%) of the YAs were foster children. The increase between ages 14-17 confirms one inference drawn from information about movement into current residences found in the cross-sectional dataset; many children are placed in foster care when they are at high school. Given that many YAs were placed in foster care before they turned 7, the school outcomes of many of the foster YAs will not be considered in the fixed effects analysis (See Section 5.2).

From birth to age 17, children with two absent parents make up the majority of the foster YAs. They are followed by paternal orphans with absent mothers. The number of YAs with two absent parents increases with age especially before the age of 7 and again between ages 14 and 17. The increase in the number of paternal orphans with absent mothers is larger between the ages of 14-17 than earlier. There are even fewer maternal orphans with absent fathers at all age levels and the increase is more uniform across the age distribution. Double orphans make up the smallest group of foster children at all ages and the increase is larger between the ages of 14 and 17 than at earlier age levels.

Altogether there are more deceased and absent fathers than deceased and absent mothers. At birth, already 304 and 1455 YAs did not live with their living mothers and fathers respectively. By age 7, the number of absent mothers doubled since birth. There was another large increase in the number of absent mothers between the ages of 14 and 17. The proportion of YAs with absent fathers also increased between the ages of 7 and 17 though it slowed down after the age of 14.

At all age levels, over 80% of the YAs who live apart from their mothers, live apart from their fathers as well and so are classified as foster children. In contrast, most YAs who live apart from their fathers live with their mothers, although as they get older, more are separated from their mothers as well.

The age-based panel dataset comes from information collected from the life calendar in Wave 1 and information about the YAs collected in the subsequent waves. Since the YAs were at least 14 when they are interviewed in Wave 1, there is little missing information before then. Even so, a substantial number of foster YAs and YAs who reside only with their mothers do not know their father's vital status.

Table 16: The proportion of YAs under each living arrangement by age, Waves 1-4

	7	8	9	10	11	12	13	14	15	16	17
Both Parents Present	**2210**	**2150**	**2129**	**2060**	**1999**	**1914**	**1871**	**1723**	**1550**	**1461**	**1317**
	53.21%	***51.77%***	***51.28%***	***49.61%***	***48.15%***	***46.11%***	***45.08%***	***43.66%***	***41.55%***	***40.28%***	***37.59%***
Mothers Present	**1236**	**1252**	**1253**	**1277**	**1308**	**1357**	**1387**	**1320**	**1263**	**1215**	**1181**
	29.76%	***30.15%***	***30.18%***	***30.76%***	***31.50%***	***32.69%***	***33.42%***	***33.45%***	***33.86%***	***33.50%***	***33.70%***
Father Dead	134	148	179	196	211	235	266	276	275	287	310
	3.23%	*3.56%*	*4.31%*	*4.72%*	*5.08%*	*5.66%*	*6.41%*	*6.99%*	*7.37%*	*7.91%*	*8.85%*
Father Absent	1053	1055	1027	1033	1051	1078	1078	1000	947	880	826
	25.36%	*25.40%*	*24.74%*	*24.88%*	*25.31%*	*25.97%*	*25.98%*	*25.34%*	*25.39%*	*24.26%*	*23.57%*
Father's Vital Status Missing	49	49	47	47	46	43	43	44	39	48	44
Fathers Present	**105**	**118**	**120**	**123**	**137**	**149**	**158**	**160**	**153**	**149**	**159**
	2.53%	***2.84%***	***2.89%***	***2.96%***	***3.30%***	***3.59%***	***3.81%***	***4.05%***	***4.10%***	***4.11%***	***4.54%***
Mother Dead	12	18	20	20	25	29	41	41	36	45	45
	0.29%	*0.43%*	*0.48%*	*0.48%*	*0.60%*	*0.70%*	*0.99%*	*1.04%*	*0.97%*	*1.24%*	*1.28%*
Mother Absent	92	98	98	100	109	116	116	116	115	99	112
	2.22%	*2.36%*	*2.36%*	*2.41%*	*2.63%*	*2.79%*	*2.80%*	*2.94%*	*3.08%*	*2.73%*	*3.20%*
Mother's Vital Status Missing	1	2	1	3	3	4	1	3	2	5	2
No Parents Resident	**602**	**633**	**650**	**692**	**708**	**731**	**734**	**743**	**764**	**802**	**847**
	14.50%	***15.24%***	***15.66%***	***16.67%***	***17.05%***	***17.61%***	***17.69%***	***18.83%***	***20.48%***	***22.11%***	***24.17%***
Both Dead	6	6	8	13	15	17	24	26	32	42	47
	0.14%	*0.14%*	*0.19%*	*0.31%*	*0.36%*	*0.41%*	*0.58%*	*0.66%*	*0.86%*	*1.16%*	*1.34%*
Both Absent	514	531	537	564	561	558	545	550	536	549	564
	12.38%	*12.79%*	*12.93%*	*13.58%*	*13.51%*	*13.44%*	*13.13%*	*13.94%*	*14.37%*	*15.14%*	*16.10%*
Father Dead, Mother Absent	27	35	41	48	56	69	75	77	94	107	128
	0.65%	*0.84%*	*0.99%*	*1.16%*	*1.35%*	*1.66%*	*1.81%*	*1.95%*	*2.52%*	*2.95%*	*3.65%*
Mother Dead, Father Absent	25	26	30	35	40	47	53	55	68	72	75
	0.60%	*0.63%*	*0.72%*	*0.84%*	*0.96%*	*1.13%*	*1.28%*	*1.39%*	*1.82%*	*1.99%*	*2.14%*
Father's Vital Status Missing	29	34	33	32	36	41	38	37	39	39	40
Mother's Vital Status Missing	6	8	8	7	7	6	7	6	6	7	9
Total	**4153**	**4153**	**4152**	**4152**	**4152**	**4151**	**4150**	**3946**	**3730**	**3627**	**3504**
Missing Information	2	2	3	3	3	4	5	209	425	528	651
Total	4155	4155	4155	4155	4155	4155	4155	4155	4155	4155	4155

Source: Own calculation using CAPS data from the young adults in Waves 1-4.

There is attrition after the age of 14. Attrition is a problem if it is correlated with the probability of being a foster child. Of the thirteen year old foster YAs, there was missing information for 15.39% of them by the time they reached 17. Although just 13.37% of the YAs who stayed with both parents when they were thirteen were missing by the time they reached seventeen, a larger percentage who lived with their mothers only, namely 17.20%, were missing by age 17.

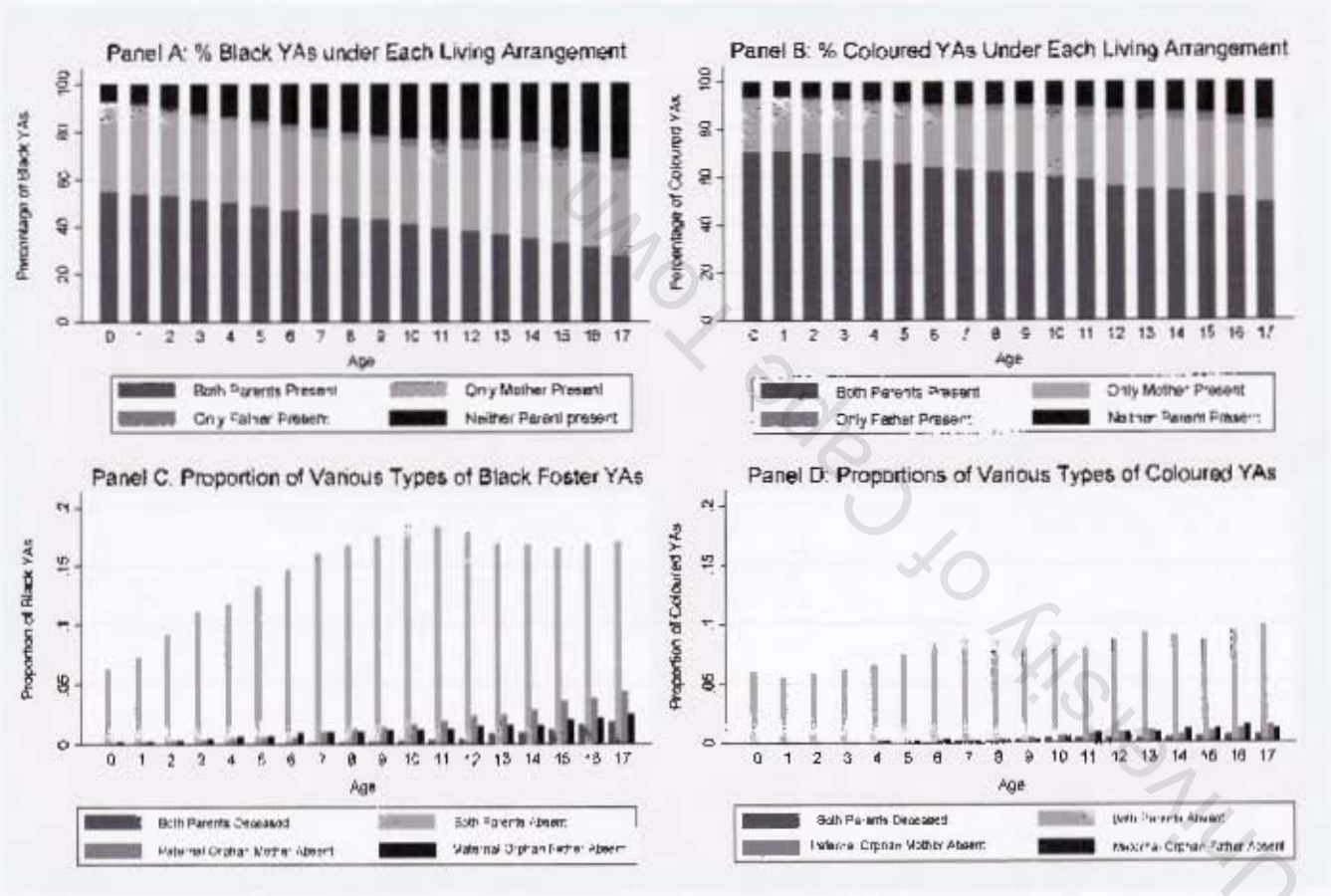
To verify that attrition is not a problem, a logit model is used to test whether attrition at age 17 is more common among YAs classified as foster children than those classified as biological children at age 13. Controls include age in Wave 1, gender and race, which also captures information about socio-economic status. The age of YAs in Wave 1 is included as a control variable because the older they are in the first wave, the lower is the likelihood of them dropping out of the sample.[34] The results are reported in Table A14 in the Appendix. The difference in attrition rates of foster and biological children are not statistically significant. Neither is the difference between foster children and each of the types of biological children.

I now look at the living arrangements separately for the black and coloured YAs. Figure 4: **Proportion of YAs under Each Living Arrangements by Age and Race, Waves 1-4** below depicts the proportion of coloured and black YAs living under the various living arrangements at each age level between birth and age 17. Although similar proportions of the black and coloured samples of YAs are foster children at birth, more black than coloured YAs move out of their parent's homes between birth and age 17. In contrast, there is a decrease in the proportion of black and coloured YAs who live with both parents as they get older. Since more coloured YAs stay with single mothers as they grow up, it is possible that some of the coloured YAs who used to stay with both parents stay with just their mothers later. Many black YAs move away from their single mothers. Considering that the proportion of black YAs who live with both parents also decreases, the majority of black YAs who move out of households with single mothers become foster children.

Panel C and D of Figure 4: **Proportion of YAs under Each Living Arrangements by Age and Race, Waves 1-4** depict the foster child categories that YAs fall into as a fraction of all the black and coloured YAs at each age level. YAs with two absent parents are the largest group of foster children in both samples. Paternal orphans with absent Mothers make up the second biggest group of foster children amongst the black YAs, followed by maternal orphans with absent fathers. Although there is an increase in all the black foster YAs as they age, there is a particularly large increase in the proportion of black YAs with two absent parents between birth and age 10.

[34] Presumably, the older YAs are more likely to move away to find work or start their tertiary education.

Figure 4: Proportion of YAs under Each Living Arrangements by Age and Race, Waves 1-4



Source: Own calculation using CAPS data about the young adults in Waves 1-4.
Notes: The stacked bar graphs in Panels A and B represent the proportion of Black and Coloured YAs respectively who lived with both parents, their mother only, their father only and neither parent at each age level. The bar graphs in Panel C and Panel D depict the proportion of the various types of Black and Coloured foster YAs respectively at each age level. The data are weighted to account for sample design as well as individual and household non-response.

Relative to the black sample, a similar proportion of coloured YAs live apart from both parents at birth. However, the increase in the number of YAs with absent parents only increases from 7% to 10%. There are few coloured foster YAs who do not stay apart from two living parents, since few coloured YAs' parents have died. Again, double orphans constitute the smallest group of coloured foster children at all age levels.

I show in this section that the proportion of YAs who lived with both parents decreases whereas that of YAs who stay with only their mothers increases as they got older. The main reason for the increase in the number of YAs who lived with their mothers is due to a surge in the deaths of fathers between ages 7-17. Like in the cross-sectional sample from Wave 1, few YAs stay with just their fathers, and the majority of foster YAs are comprised of children with absent living parents.

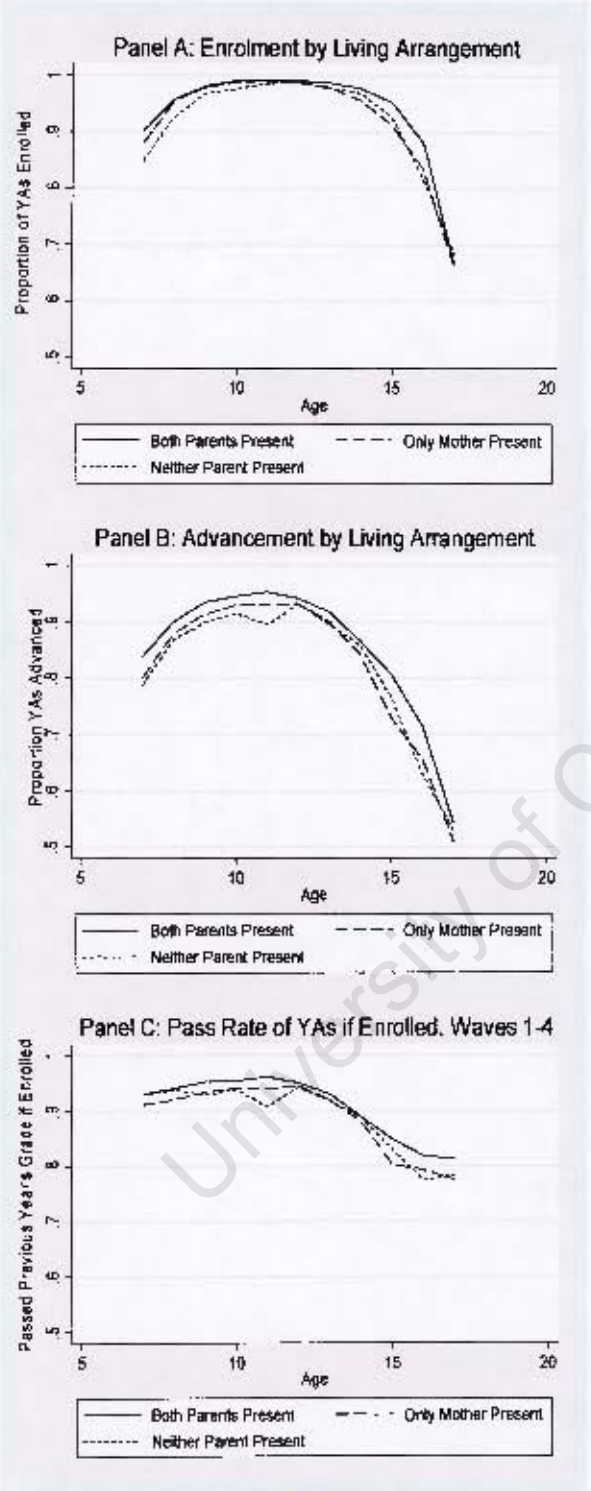
Many of the coloured YAs who used to stay with both parents later lived with their single mothers, On the other hand, many of the black YAs who previously stayed with their parents or their single mothers were placed in foster care. The proportion of foster YAs in the sample appears to increase with age, especially before 7 and between 14 and 17 years old.

5.1.2 School Performance of YAs between Ages 7-17

I turn now to describing the performance of YAs at school. **Figure 5: School Outcomes by Living Arrangement and Age, Waves 1-4** illustrates the difference in school outcomes between children living under each living arrangement at each age level. The first graph in Panel A of **Figure 5: School Outcomes by Living Arrangement and Age, Waves 1-4** below depicts enrolment rates by age. The second graph presents the proportion of YAs in each living arrangement who advanced from their previous grade. Included in this sample are YAs who were not enrolled in school. The third graph shows the pass rates of only those YAs who are currently enrolled.

Enrolment rates are generally very high; the proportion of YAs who are enrolled is never less than two thirds at each age level and 95% of the YAs were enrolled between ages 7 and 13. Turning to grade progression, between the ages of 9 and 13, over 90% of the YAs had completed the grade the year before and a similar proportion of the enrolled YAs had passed. After 14, the proportion of YAs who advanced to the next grade decreased; at 17 years old, just over a half of the YAs were permitted to advance a grade. The pass rate of the enrolled YAs dropped to around 80%. That the pass rate of the enrolled YAs is above the rate of advancement of all the YAs suggests that many of the YAs who dropped out of school after the age of 14 did not pass their previous grade. Therefore, most of the variation in grade attainment happens between the ages of 14 and 17.

Figure 5: School Outcomes by Living Arrangement and Age, Waves 1-4



Source: Own calculation using CAPS data about the young adults in Waves 1-4.

Notes: Panels A, B and C depict the enrolment rate, advancement rate and pass rate if enrolled respectively of YAs living under various living arrangements at each age level. The data are weighted to account for sample design as well as individual and household non-response.

More foster YAs than biological YAs enrol late. Between ages 12-17, the enrolment rate of foster YAs only falls short of the enrolment rate of YAs living with both parents. Similarly, the advancement and pass rates are higher among those who stay with both their parents than among foster YAs and YAs living with single mothers, and there is no discernible difference between the educational attainments of foster YAs and those living with single mothers. These observations are consistent with the findings in Section 4; foster children and children who live with single mothers do not appear to perform differently.

Figure A3 in the Appendix illustrates the differences in school outcomes by living arrangements for coloured and black YAs. Late enrolment occurs mainly in the black sample; about 35% of the black YAs had not enrolled in school by age 7. After age 13 black YAs have higher enrolment rates than coloured YAs. Coloured YAs progress through school faster than black YAs before the age of 13. Afterwards, black YAs perform better. Given that pass rates between black and coloured enrolled YAs are similar, it is likely that the main reason for coloureds having a lower rate of advancement between ages 13-17, is the disparity in enrolment rates.[35]

Figure A3 confirms the findings based on the cross-sectional data. In both the samples of coloured and black YAs, enrolment rates between the foster and biological YAs are similar until age 12. Afterwards, coloured foster YAs and YAs who live with just their mothers record a lower enrolment rate than YAs who live with both parents. The advancement and pass rates of coloured foster YAs and YAs living with single mothers fall short of those living with both parents at all age levels, and the gap increases after age 14.

Black foster YAs and YAs living with single mothers achieve a higher enrolment rate than black YAs who stay with both parents until the age of 13, after which the trend is reversed. Advancement rates are highest among black YAs who live with just their mothers until 14. Afterwards YAs living with both their parents have the highest rates of advancement. The pass rates of enrolled foster and biological children are similar for most of primary school. Afterwards, the pass rates of black foster YAs are lower than YAs with co-resident parents and YAs who stay just with their mothers.

[35] Even though there is more variability in advancement rates among coloured children, it is likely that there is at least as much variation in achivement in the final year of school (matric) among black children, given that former black schools still achieve the lowest pass rates (Lam et al, 2008).

Using retrospective data about the YAs from CAPS, I confirm that enrolment rates have been high. Advancement and pass rates are high between the ages of 9 and 13, after which they fall. As in the cross-sectional results, foster YAs do worse than YAs who live with both parents but not those who live with single mothers especially as they get older. Coloured YAs progress through high school slower than black YAs because many coloured YAs drop out when they do not advance. Finally, fewer black and coloured foster YAs than YAs living with their parents advance at high school.

5.2. METHOD

In this section, I describe how individual fixed effects models will be used to compare the rates of advancement of YAs before and after they were fostered. The probability of advancing from the previous year's grade is modelled using a linear probability model estimated with individual fixed effects based on retrospective panel data for each YA between ages 7-17.

Often, dummy variable dependent variables are modelled as non-linear models, for example logit or probit models. Individuals who advance from all the previous grades or fail all grades would be discarded from the sample in a fixed effects logit model since it only uses those observations where there is variation within children over time. The data cannot support a fixed effects logit model as there are not enough individuals where there is variation in whether or not YAs advance a grade.

I use the linear probability model despite the problems associated with it. The conditional expected value of binary dependent variables will be the change in the probability that children advanced from the previous grade conditional on the explanatory variables: $E(A_{it}|x_{it}) = P(A_{it} = 1|\, x_{it})$. One weakness associated with linear probability models is that a unit increase in the explanatory variable always changes $P(A_{it} = 1|x_{it})$ by the same amount regardless of what the initial value of the explanatory variable is. This is problematic because this conditional expected value will eventually fall outside [0, 1] (Wooldridge, 2002: 455). [36]

However, because the explanatory variables are discrete, this problem should not arise. According to Angrist and Pischke (2009: 49), linear probability models tend to work best when models are saturated which means that there are dummy explanatory variables for mutually exclusive and exhaustive categories; the fitted probabilities will be the average dependent variable in each cell and they will fall within [0, 1] (Wooldridge, 2002: 455).

[36] Because conditional expected values represent the probability of observing an outcome, for this value to make sense it should be between 0 and 1.

I use an individual fixed effects model so that I may control for time-invariant individual characteristics that are relevant for performance at school like parent's taste for education, intelligence and motivation. Comparisons between the educational achievement of foster and biological children are tricky because it is likely that they differ in ways that are difficult to measure. If being a foster child is correlated with relevant time-invariant unobservable characteristics, then the difference in achievement relative to biological children may partly be attributable to this characteristic and not because they do not live with their parents.

The value placed on education by biological parents may be systematically associated with whether or not one is a foster child; biological parents who are particularly invested in their children's education could be predisposed to place their children in foster care. Endogenous selection of children is also possible; parents may place in foster care only their children with the highest expected returns to schooling. Alternatively, foster children may perform worse at school relative to other children because their cognitive development was hampered in the years before they were fostered. When comparisons on the basis of cross-sectional data are made, the value placed on education by parents, or the personal characteristics of foster children, may be incorrectly attributed to separation from parents. Alternatively, the estimates will suffer from missing variables bias.

Individual fixed effects analyses are able to mitigate the problem of missing variables bias if the missing variables are time-consistent. With an individual fixed effects analysis, one compares the performance of foster YAs relative to when they stayed with parents. Similar to that of the household fixed effects model, the individual fixed effects error term can be expressed as:

$$\varepsilon_{it} = \alpha_i + \mu_{it} \tag{8}$$

where α_i are characteristics that are invariant across all the individuals over time, capturing both observable and unobservable factors, and μ_{it}, assumed to be independently and identically distributed over i and t, are individual characteristics that differ over time. The form of the linear probability model with fixed effects is:

$$A_{it} = \gamma_0 + \alpha_i + D_N N_{it} + D_M M_{it} + D_F F_{it} + \gamma X_{it} + \mu_{it} \tag{9}$$

where A_{it} is a dummy variable for advancement at school, N_{it} is a dummy variable representing whether YAs are non-biological children at time t, M_{it} represents children who stay with single mothers at time t, F_{it} represents children who stay with just their fathers at time t and X_{it} are individual and household characteristics which change over time, which due to limited data is just

age. Individual fixed effects models are identified using the variation within YAs over time. Within estimation, used to estimate the coefficients, is done by firstly subtracting the individual means:

$$A_{it} - \bar{A}_i = D_F(F_{it} - \bar{F}_t) + D_M(M_{it} - \overline{M_t}) + D_F(F_{it} - \bar{F}_t) + \gamma(X_{it} - \bar{X}_t) + (u_{it} - \bar{u}_t) \quad (10)$$

where $\bar{A}_i$ is the average number of times that each individual i advanced from the previous grade across all time periods t. As a result of subtracting the individual means, α_i and γ_0 are removed from the equation and the coefficients of the dummy variables are then estimated using ordinary least squares (Ardington and Leibbrandt, 2010). These models cannot be used to identify the effect of explanatory variables that remain constant within each individual since they will be removed when the means are subtracted from them (they are included in α_i).

When information for some time periods are missing on the cross-sectional units then the averages are calculated over the number of time periods observed for the cross-sectional unit i. Missing information becomes a problem if foster children are more likely than other children to not have information about whether or not they advanced from the previous grade. As I've shown in section 5.1.1, being fostered is not correlated with attrition.

Identification relies on the assumption that any unobservable factors that affect both the probability of being fostered and the probability of advancing do not vary over time. Fixed effects estimates are relatively sensitive to residual endogeneity including time-varying missing variables and measurement error because much of the variation in the data-namely that between individuals- is not used.[37] One possible time-varying missing variable is whether foster children moved to better schools when they were fostered. Another shortcoming of using fixed effects is that there are fewer degrees of freedom so there is a loss of power (McKinnish, 1998:3).

Because there is likely to be persistence in the error term over time for each person, panel data models will usually suffer from heteroskedasticity and serial correlation. Heteroscedasticity is also a problem accompanying linear probability models. It is for these reasons that robust standard errors allowing for correlation between the unobservable characteristics of YAs who are in the same sampling cluster are used (Cameron and Trivedi, 2005:705; Nicols, 2007: 6).

[37] Fixed effects linear probability models impose the following 'unnatural' restriction on the time-invariant unobservable effect:

$$p(A_{it} = 1|x_{it}) \leq \alpha_i \leq 1 - p(A_{it} = 1|x_{it}) \qquad t = 1, \ldots T$$

where $P(A_{it} = 1|x_{it}) = D_F F_{it} + D_M M_{it} + D_F F_{it} + \gamma X_{it}$ is the probability that the YAs advanced a grade (Wooldridge, 2002: 482).

5.3 RESULTS

5.3.1 Results

Individual fixed effects regressions are run to compare the age-adjusted probability of advancing of YAs who change from living with at least one parent to living apart from both parents at some point between the ages of 7 and 17. There are 42,728 person-year observations, reflecting 4084 YAs observed over 11 years. Weights correcting for sample design as well as household and young adult non-response are used.[38] Once again, a full set of indicators are included in each regression since children are more likely to progress slowly as they get older.

Since a linear probability model with fixed effects is used to model whether or not YAs advanced from the previous grade, the coefficients on the foster child dummy variable are interpreted as a change in the probability of advancing a grade as a result of being placed into foster care. The schooling of YAs who have been a foster child for their entire lives are not used to calculate these fixed effects estimates. Therefore, the estimates will not be based on the YAs who became foster children before the age of 7 and remained in that category until they were 17.

Table 17: Individual Fixed Effects results presents the basic individual fixed effects estimates of what happens to grade advancement when YAs are separated from their parents using the same four specifications of living arrangements as in the cross-sectional analysis. In Panel A, I examine what happens when the YAs are placed into foster care. In Panel B, I examine the change in the probability of advancing when YAs become double orphans, children with two absent living parents, maternal orphans with absent fathers or paternal orphans with absent mothers. Note that YAs may have moved from one foster child category to another as well.

In Columns 1 and 3, the base category is when YAs stay with at least one of their parents. Columns 2 and 4 show what happens to the estimates when other living arrangement dummy variables representing the presence of only one's mother and the presence of just one's father are included in the regression. The living arrangements are mutually exclusive and co-residence with both parents is the base category.

Both the results presented in Columns 1 and 2 show that fostering does not have a significant effect on the probability of advancing to the next grade. The coefficient is negative in Column 2, when the

[38] The sample statistics of the panel data sample are in Table A18 in the Appendix. To conduct fixed effects analyses, variation in variables across individuals is needed. For most of the education variables, the standard deviation within individuals is higher than the standard deviation between individuals. The opposite is the case for the living arrangement variables though the standard deviation within YAs is still enough to use fixed effects models (Stata Manual, 2009: 505)

Parental death may have been the reason why YAs became foster children. In addition, many of the children living with single parents may be doing so due to the death of their other parent. As in the cross-sectional analysis, controls for maternal and paternal death are added in all four specifications. The fixed effects results with controls for parental death are presented in Table 19: Individual Fixed Effects results with controls for parental death.

Once again, using both the first and second specifications, separating from parents has no significant effect on the probability of advancing. When the base category is co-residence with at least one

Table 19: Individual Fixed Effects results with controls for parental death

Advancement	Panel A		Panel B	
	1	2	3	4
Foster Child	0.00231	-0.00603		
	(0.0120)	(0.0144)		
Both Deceased			0.0390	0.0199
			(0.0573)	(0.0616)
Both Absent			0.00111	-0.00576
			(0.0124)	(0.0145)
Mother Absent, Father Deceased			0.0181	0.00546
			(0.0325)	(0.0354)
Father Absent, Mother Deceased			-0.0162	-0.0299
			(0.0509)	(0.0576)
Only Mother Present		-0.0141		-0.0125
		(0.0121)		(0.0124)
Only Father Present		-0.00892		-0.0106
		(0.0206)		(0.0229)
Maternal Death	-0.0420*	-0.0410	-0.0402	-0.0338
	(0.0244)	(0.0259)	(0.0337)	(0.0402)
Paternal Death	0.00620	0.0102	-0.000820	0.00547
	(0.0220)	(0.0231)	(0.0226)	(0.0238)
N	42,780	42,728	42,728	42,728
R-squared	0.131	0.131	0.131	0.131
No. Individuals	4,084	4,084	4,084	4,084

Source: Own calculation using CAPS data about the young adults in Waves 1-4.
Notes: All regressions include a full set of indicators for age. The data are weighted to account for sample design as well as individual and household non-response. Robust standard errors are in parentheses, * p<0.05, ** p<0.01, *** p<0.001

parent, the coefficient is smaller relative to when controls for paternal and maternal death were not included because parental death, which is often associated with being fostered, slows children's progress through school. Compared to living with at least one parent, maternal death lowers the probability of advancing by 4.20% though the estimate is only significant at the 10% level. Maternal death accompanied by paternal absence no longer has a significant effect on advancement.

Maternal death also lowers the probability of advancement by 3.38% in the fourth specification; however the coefficient representing this effect is statistically insignificant. All the coefficients

representing the living arrangements of foster YAs that are correlated with maternal death in the fourth specification are more positive than in Table 17: Individual Fixed Effects results.

Table 20: Individual Fixed Effects results by race with controls for parental death, Specifications 2 and 4 and Table A17 in the Appendix replicate the results in Table 21: Individual Fixed Effects results over and under age 13, Specifications 1 and 2 for each race group. The death of one's mother lowers the probability that black YAs advance by 6.75% relative to co-residence with both parents though this estimate is only significant at the 10% level. The coefficient is larger and statistically significant at the 5% level in the results using the first specification where the
base category is co-residence with at least one parent. The coefficient is larger because the comparison group includes black YAs living with their mothers. Because a large number of black YAs stay with single mothers, maternal death is more harmful than if they had stayed with both their parents or with their fathers before. In contrast, paternal death has a negative effect on the probability of advancing in the coloured sample only.

In both the second and fourth specifications, the coefficients representing the effect of being fostered are still not statistically significant, even at the 10% level. In the fourth specification, relative to when they live with both parents, the coefficients representing the effect of becoming black foster children with a deceased mother (including double orphans) is more positive when parental death is controlled for. Similarly, the effect of becoming a coloured foster child with a deceased father (also including double orphans) is also more positive.

Table 20: Individual Fixed Effects results by race with controls for parental death, Specifications 2 and 4

Advancement	Specification 2		Specification 4	
	Black	Coloured	Black	Coloured
Foster Child	-0.00893	-0.0121		
	(0.0183)	(0.0208)		
Both Deceased			0.0646	-0.0586
			(0.0942)	(0.124)
Both Absent			-0.00975	-0.00819
			(0.0184)	(0.0206)
Mother Absent, Father Deceased			-0.00117	-0.0421
			(0.0354)	(0.0655)
Father Absent, Mother Deceased			0.0712	-0.0941
			(0.0953)	(0.0703)
Only Mother Present	-0.00802	-0.0136	-0.00571	-0.0159
	(0.0180)	(0.0151)	(0.0184)	(0.0157)
Only Father Present	-0.0273	0.00885	-0.0161	-0.00664
	(0.0287)	(0.0275)	(0.0338)	(0.0293)
Maternal Death	-0.0675*	-0.0456	-0.127	0.00150

	(0.0384)	(0.0332)	(0.0816)	(0.0453)
Paternal Death	0.0134	-0.0687**	0.0104	-0.0621*
	(0.0277)	(0.0316)	(0.0282)	(0.0346)
N	22,048	20,680	22,048	20,680
R-squared	0.080	0.203	0.080	0.204
No. Individuals	2,099	1,985	2,099	1,985

Source: Own calculation using CAPS data about the young adults in Waves 1-4.
Notes: All regressions include a full set of indicators for age. The data are weighted to account for sample design as well as individual and household non-response. Robust standard errors are in parentheses, * p<0.05, ** p<0.01, *** p<0.001

In this section, I show, based on the panel data of YAs between ages 7-17, that being fostered has no statistically significant effect on the probability of advancing from the previous grade using the first and second specifications. There is evidence that maternal and paternal death, which occurs among both biological and foster children, does have an impact on schooling in the black and coloured samples of YAs respectively.

One reason why separating from parents does not appear to play a role in children's education could be that various types of foster children perform systematically differently. However, none of the coefficients representing the effect on schooling of moving into each foster child category are statistically significant either. It is possible that the reason for this is that too few YAs moved into and out of each of these categories between the ages of 7 and 17; just 41 YAs became double orphans and about 50 eventually lived apart from two living parents.

Alternatively, the results may mean that there is no evidence that being fostered adversely effects children's schooling outcomes. In that case, the estimates of the differences found between foster and biological children using the cross-sectional data suffer from omitted variables bias. Before concluding that this is the case, I explore one other reason for why fostering does not appear to impact on school outcomes; the effect of being fostered may be non-constant.

5.3.2. Non-Constant Effects of Fostering

Fostering may have non-constant effects on education. Firstly, the effect of being fostered on education might differ depending on children's ages. Secondly, it might differ depending on the duration of time since they separated from parents. I start by examining the impact of not living with parents on school outcomes under and over the age of 13.

Most of the variation in educational attainment occurs at high school which is where children repeat grades or drop out, fail or pass their matriculation exams and get accepted or rejected from tertiary

education institutions (Lam et al, 2008). Taylor et al (2011) illustrate that inequalities in the cognitive ability of children at the end of primary school persist throughout high school. Therefore, it is possible that even though fostering did not appear to have an effect in the main results, it may be found after the age of 13, when children typically start high school in South Africa.

To examine the impact of separating from one's parents on the age-adjusted probability of advancing for YAs under and over the age of 13, an indicator for ages where YAs are over the age of 13 as well as an interaction term between the dummy variable representing foster children and the over-13 age indicator are added to the regressions. The interaction term represents the additional impact on schooling of being both a foster child and over the age of 13.

For practical reasons, the results of all four specifications are not presented on one table as before. I present the results of the first and second specifications on Table 21: Individual Fixed Effects results over and under age 13, Specifications 1 and 2, and those of the third and fourth specifications are on Table 22: Individual Fixed Effects results over and under age 13, Specifications 3 and 4. In both cases, the results based on the full sample are shown in the first two columns. I discuss these first. The results based on the black and coloured samples of YAs are presented in Columns 3-6 of each table.

In Columns 1, 3 and 5 of both tables, the base category is when YAs are below the age of 13 and live with at least one of their parents. The base category in Columns 2, 4 and 6 are when YAs under the age of 13 live with both parents. There are also interaction terms between the over-13 age indicator and the dummy variables representing the presence of just one's mother or just one's father.

I discuss the results presented in the first two columns of Table 21: Individual Fixed Effects results over and under age 13, Specifications 1 and 2 and Table 22 first before I discuss the results by racial category. Given that most of the variation in educational attainment occurs as children get older (See Section 3.1.2), it is unsurprising that the probability of advancing a grade is 36.2% lower after the age of 13 than before (Specifications 2 and 4). Before the age of 13, separating from parents has no significant effect on the probability of advancing regardless of the specification used. There is also no significant effect of separating from parents on educational outcomes after the age of 13.

I turn to the results of the third and fourth specifications, presented in Table 22: Individual Fixed Effects results over and under age 13, Specifications 3 and 4, which show what happens to school outcomes when YAs move into each of the four foster child categories before and after the age of 13. The coefficient of the interaction term representing the additional effect of being separated by absent living parents over the age of thirteen is positive and statistically significant (10% level) relative to

living with at least one parent (Specification 3). While living apart from two absent parents lowers the probability of advancement by 35.7%, this is due to the fact that older children fall behind more than younger children. In fact, when only the ages between 13 and 17 are used for comparison, becoming a foster child with two absent parents raises the probability of advancing by 1.3%.

In the fourth specification, when staying with both parents is the base category, living apart from two living parents has a smaller effect on advancement over the age of 13 and the estimate is statistically insignificant. The reason for the discrepancy across the specifications is that there is only evidence of a positive effect relative to co-residence with single parents after the age of 13.

Table 21: Individual Fixed Effects results over and under age 13, Specifications 1 and 2

Advancement	Full		Black		Coloured	
	1	2	1	2	1	2
Over 13 Years Old	-0.417***	-0.362***	-0.286***	-0.263***	-0.461***	-0.445***
	(0.0133)	(0.0160)	(0.0151)	(0.0188)	(0.0172)	(0.0182)
No Parents Present	-0.00916	-0.0129	0.00681	0.00807	0.00621	0.00682
	(0.0137)	(0.0152)	(0.0156)	(0.0198)	(0.0207)	(0.0218)
No Parents *Over13	0.0202	0.0122	-0.0155	-0.0374**	-0.0209	-0.0358*
	(0.0127)	(0.0134)	(0.0159)	(0.0187)	(0.0201)	(0.0204)
Only Mother Present		-0.00536		0.00768		0.00417
		(0.0135)		(0.0185)		(0.0174)
Mothers Only*Over 13		-0.0168		-0.0390***		-0.0398**
		(0.0122)		(0.0144)		(0.0167)
Only Father Present		0.00997		0.000999		0.0417
		(0.0258)		(0.0375)		(0.0333)
Fathers Only*Over 13		-0.0315		-0.0609		-0.0649*
		(0.0287)		(0.0392)		(0.0378)
Mothers Deceased	-0.0452*	-0.0415	-0.0700*	-0.0604	-0.0374	-0.0349
	(0.0243)	(0.0260)	(0.0368)	(0.0382)	(0.0309)	(0.0334)
Fathers Deceased	0.00598	0.0121	0.0128	0.0164	-0.0743**	-0.0604*
	(0.0220)	(0.0228)	(0.0257)	(0.0275)	(0.0304)	(0.0307)
N	42,780	42,728	22,085	22,048	20,695	20,680
R-squared	0.132	0.132	0.080	0.081	0.204	0.204
No. Individuals	4,084	4,084	2,099	2,099	1,985	1,985

Source: Own calculation using CAPS data about the young adults in Waves 1-4.
Notes: All regressions include a full set of indicators for age. The data are weighted to account for sample design as well as individual and household non-response. Robust standard errors are in parentheses, * p<0.05, ** p<0.01, *** p<0.001

I now turn to the results by racial category. I first focus on the results based on the first and second specifications, which are presented in Columns 3-6 of Table 21: Individual Fixed Effects results over and under age 13, Specifications 1 and 2. In both the black and coloured samples, when the base category is co-residence with both parents, the coefficients of the interaction terms, representing the

additional effect of becoming a foster child and being older than 13, are negative and statistically significant. When outcomes between the ages of 13-17 are compared, black and coloured YAs who become foster children demonstrate a 2.94% and 2.90% lower probability of advancing respectively. The coefficient of the interaction term is only significant at the 10% level in the coloured sample. Black and coloured YAs who became foster children are not disadvantaged relative to staying with one of their parents over the age of 13.

The results by racial category using the third and fourth specifications, which are presented in Columns 3-6 in Table 22: Individual Fixed Effects results over and under age 13, Specifications 3 and 4, reveal a number of interesting findings. Relative to living with both parents, staying with single mothers hinders progress at school after the age of 13. This is not dissimilar to the findings based on the cross-sectional analysis; children who live with single mothers have completed fewer grades than children who live with both parents.

Table 22: Individual Fixed Effects results over and under age 13, Specifications 3 and 4

Advancement	Full		Black		Coloured	
	3	4	3	4	3	4
Over 13	-0.370***	-0.362***	-0.284***	-0.261***	-0.461***	-0.445***
	(0.0151)	(0.0160)	(0.0151)	(0.0188)	(0.0171)	(0.0182)
Both Parents Dead	0.0738	0.0566	0.325***	0.308***	-0.0701	-0.0873
	(0.0774)	(0.0802)	(0.0936)	(0.102)	(0.121)	(0.127)
Both Dead, Over 13	-0.0353	-0.0440	-0.258***	-0.282***	0.0471	0.0308
	(0.0679)	(0.0687)	(0.0502)	(0.0515)	(0.0834)	(0.0842)
Both Parents Absent	-0.0123	-0.0154	-0.00258	0.00171	0.00950	0.00790
	(0.0145)	(0.0157)	(0.0167)	(0.0203)	(0.0217)	(0.0225)
Both Parents Absent, Over 13	0.0252*	0.0181	-0.00699	-0.0279	-0.0170	-0.0312
	(0.0135)	(0.0138)	(0.0178)	(0.0201)	(0.0209)	(0.0207)
Mother Absent, Father Deceased	0.0564	0.0471	0.0790**	0.0794**	0.0590	0.0462
	(0.0432)	(0.0442)	(0.0348)	(0.0382)	(0.0819)	(0.0835)
Mother Absent, Father Deceased, Over 13	-0.0531	-0.0606	-0.0989***	-0.120***	-0.116	-0.131
	(0.0457)	(0.0464)	(0.0336)	(0.0357)	(0.0921)	(0.0928)
Father Absent, Mother Deceased	-0.0690	-0.0818	0.0834	0.0675	-0.118	-0.132
	(0.0575)	(0.0625)	(0.0777)	(0.0908)	(0.0819)	(0.0855)
Father Absent, Mother Deceased, Over 13	0.0663	0.0590	0.00334	-0.0179	0.0463	0.0324
	(0.0452)	(0.0456)	(0.0535)	(0.0548)	(0.0718)	(0.0720)
Only Mother Present		-0.00458		0.0101		0.00163
		(0.0136)		(0.0188)		(0.0179)
Only Mother Present, Over 13		-0.0165		-0.0397***		-0.0396**
		(0.0122)		(0.0144)		(0.0167)
Only Father Present		0.00768		0.0111		0.0277

		(0.0281)		(0.0428)		(0.0355)
Only Father Present, Over 13		-0.0332		-0.0595		-0.0683*
		(0.0283)		(0.0378)		(0.0369)
Mother Deceased	-0.0408	-0.0293	-0.138**	-0.115	-0.00222	0.0132
	(0.0338)	(0.0397)	(0.0692)	(0.0797)	(0.0392)	(0.0466)
Father Deceased	0.000994	0.00979	0.00743	0.0142	-0.0693**	-0.0528
	(0.0226)	(0.0235)	(0.0258)	(0.0279)	(0.0327)	(0.0336)
N	42,728	42,728	22,048	22,048	20,680	20,680
R-squared	0.132	0.132	0.081	0.082	0.204	0.205
No. YAs	4,084	4,084	2,099	2,099	1,985	1,985

Source: Own calculation using CAPS data about the young adults in Waves 1-4.
Notes: All regressions include a full set of indicators for age. The data are weighted to account for sample design as well as individual and household non-response. Robust standard errors are in parentheses, * p<0.05, ** p<0.01, *** p<0.001

Unexpectedly, becoming a double orphan has a large positive effect on black YA's advancement before the age of 13. The coefficient of the interaction term representing the additional effect of being over the age of 13 and orphaned by both parents is statistically significant and negative. After 13, becoming a double orphan lowers the probability of advancement by 6.7% and 2.6% using the third and fourth specifications respectively.[39] Similarly, becoming a foster YA with a deceased father and absent mother raises the probability of advancing before the age of 13 and lowers it after the age of 13 in the black sample.

None of the estimates of the coefficients representing the effect of becoming each of the four types of foster children in the coloured sample are statistically significant. One reason why none of the coefficient estimates are significant at the 5% level in the coloured sample is the small number of coloured YAs who moved into or out of each group between the ages of 7 and 17.

These results show that that becoming a foster child affects school outcomes when YAs are examined before and after the age of 13, particularly in the black sample of YAs. Another possible reason why becoming a foster child did not appear to change the probability of advancing, is that part of the effect on schooling might have accrued prior to becoming a foster child. The number of years since children have been fostered might also matter. It has been assumed that the effect of becoming a foster child is constant in all the years afterwards. In actual fact, the effects may only manifest years afterwards. In the next part of this section, the outcomes of the YAs in the years that they were fostered are distinguished from the outcomes in the years preceding and following it.

[39] In actual fact, when one is orphaned by both parents after the age of 13, the probability of advancing is lowered by about 33.7% relative to living with both parents before the age of 13. However, most of the effect is due to the fact that they are older than 13.

I estimate a fixed effects model with variables representing periods before and after the separation from parents occurred. If the coefficient of the variable representing the years before YAs became foster children is negative, then foster children were already relatively disadvantaged just before they were fostered. If YAs experience a lower rate of advancing in the years afterwards, the coefficient of the indicator will be negative. If the effects of fostering accumulate, the absolute values of the coefficients of the variables will get larger the longer the time since they were fostered. If the effects subside, the values of the coefficients will get smaller (Ardington & Leibbrandt, 2009: 38).

As before, even though the specifications are presented on two tables I report on the results based on the full sample and then on each by racial category. Columns 1 and 2 of Table 23: Individual Fixed Effects results before and after fostering, Specifications 1 and 2 present the effect on the age-adjusted probability of advancement before, during and after YAs become foster children based on the full sample of YAs. In Table 2: Movement of Children, aged 7-17 in Wave 1, I analyse the effect on the probability of advancing a grade as a result of being fostered into one of the four categories of foster children. The base category using the third specification is co-residence with either biological parent three or more years before they separated from their parents. The full results of Specification 4 are presented in the Table A18 in the Appendix.

Judging from Table 23: Individual Fixed Effects results before and after fostering, Specifications 1 and 2, relative to living with both parents at least three years before, becoming a foster child raises the probability of advancing in subsequent years. The coefficients are larger the longer the time since the YAs have been fostered suggesting that it confers a cumulative positive impact on achievement at school.

In the third specification, presented on Table 24: **Individual Fixed Effects before and after fostering, Specifications 3 and 4,** none of the coefficients of the indicators are significant at the 5% significance level. YAs with absent mothers and deceased fathers appear to perform better one or two years after moving away from parents though the effect subsides. Relative to co-residence with both parents (Specification 4), the change in the probability of becoming a paternal orphan with an absent mother is larger. In addition, YAs who move away from two living parents achieve a higher level of advancement three or more years after they are fostered, and the benefits accumulate.

Note that YAs who are fostered after they turn 15 are not observed three or more years afterwards. In other words, the coefficient on the indicator representing three or more years after having separated from parents is only estimated off the YAs who were fostered before the age of 15. This indicator will

also capture the effect of being fostered when one is younger (Ardington & Leibbrandt, 2009: 41). Therefore, the positive and significant effect of becoming a foster child on the probability of advancing may also be because living apart from parents at a young age is not disadvantageous.

Turning to the impact in the black and coloured samples (Specification 2, Table 23: Individual Fixed Effects results before and after fostering, Specifications 1 and 2), becoming a foster child has a positive and statistically significant effect on the progression of coloured YAs three or more years afterwards. The coefficient on the indicator representing the period three years subsequent to being separated from parents is larger than the coefficients on the indicators capturing the year in which they became a foster child and the two years following it. These findings suggest that coloured YAs benefit the most from being fostered three or more years afterwards and there is little evidence that the same holds for the black foster YAs.

Based on the fourth specification presented in Table 24: **Individual Fixed Effects before and after fostering, Specifications 3 and 4**, in the coloured sample, separating from two absent living parents has a positive effect on schooling outcomes three or more years afterwards. Coloured YAs who separated from both living parents also experienced a 5.3% lower probability of advancing in the two years before they separated. This suggests that Coloured YAs with two absent parents performed worse before they separated from them and that their performance improved after having moved away.

Table 23: Individual Fixed Effects results before and after fostering, Specifications 1 and 2

Advancement	Full		Black		Coloured	
	1	2	1	2	1	2
Foster Child						
Separated this Year	0.00295	0.0176	-0.0122	-0.00199	0.00157	0.0230
	(0.0169)	(0.0180)	(0.0205)	(0.0231)	(0.0276)	(0.0286)
1/2 Years After	0.0154	0.0311*	0.0262	0.0373*	-0.0116	0.0108
	(0.0155)	(0.0158)	(0.0170)	(0.0189)	(0.0252)	(0.0249)
3/More Years After	0.0258*	0.0412***	0.00880	0.0198	0.0346	0.0557**
	(0.0148)	(0.0156)	(0.0167)	(0.0185)	(0.0230)	(0.0234)
1/2 Years Before	0.00142	-0.000975	0.00478	0.00286	-0.0266	-0.0286
	(0.0129)	(0.0129)	(0.0162)	(0.0163)	(0.0194)	(0.0193)
Mother Only						
Separated this Year		0.0289*		0.0309		0.00877
		(0.0159)		(0.0202)		(0.0235)
1/2 Years After		0.0352**		0.0224		0.0414**
		(0.0136)		(0.0184)		(0.0185)
3/More Years After		0.0272**		0.0226		0.0421**
		(0.0133)		(0.0175)		(0.0176)
1/2 Years Before		0.00306		0.00935		-0.0101
		(0.0139)		(0.0173)		(0.0212)
Father Only						

Separated this Year		0.0147		-0.00250		0.0315
		(0.0280)		(0.0358)		(0.0429)
1/2 Years After		0.0658***		0.00202		0.122***
		(0.0245)		(0.0341)		(0.0338)
3/More Years After		0.00582		-0.000983		0.00648
		(0.0275)		(0.0426)		(0.0326)
1/2 Years Before		0.00337		-0.0151		0.00786
		(0.0228)		(0.0254)		(0.0376)
Mother Deceased	-0.0528**	-0.0564**	-0.0863**	-0.0814**	-0.0533	-0.0676*
	(0.0244)	(0.0261)	(0.0360)	(0.0384)	(0.0323)	(0.0343)
Father Deceased	-0.000593	-0.0113	0.00425	-0.00437	-0.0824***	-0.0987***
	(0.0216)	(0.0227)	(0.0245)	(0.0258)	(0.0310)	(0.0328)
N	44,217	44,217	22,687	22,687	21,530	21,530
R-squared	0.145	0.146	0.084	0.084	0.221	0.222
No. Individuals	4,084	4,084	2,099	2,099	1,985	1,985

Source: Own calculation using CAPS data about the young adults in Waves 1-4.
Notes: All regressions include a full set of indicators for age. The data are weighted to account for sample design as well as individual and household non-response. Robust standard errors are in parentheses, * p<0.05, ** p<0.01, *** p<0.001

Table 24: Individual Fixed Effects before and after fostering, Specifications 3 and 4

Advancement	Full		Black		Coloured	
	3	4	3	4	3	4
Both Parents Deceased						
This Year	-0.0584	-0.0431	-0.0587	-0.0471	-0.284*	-0.269*
	(0.0780)	(0.0785)	(0.0976)	(0.0994)	(0.148)	(0.150)
1/2 Years After	0.0387	0.0544	-0.00311	0.00900	-0.113	-0.0979
	(0.0508)	(0.0518)	(0.0580)	(0.0601)	(0.118)	(0.121)
3/More Years after	-0.0164	-5.85e-05	-0.125**	-0.109*	-0.0995	-0.0854
	(0.0711)	(0.0712)	(0.0578)	(0.0586)	(0.130)	(0.131)
1/2 Years Before	0.0112	0.00894	0.0225	0.0220	-0.284**	-0.297**
	(0.0563)	(0.0564)	(0.0592)	(0.0596)	(0.143)	(0.137)
Both Parents Absent						
This Year	-0.00462	0.00636	-0.0221	-0.0144	0.00690	0.0201
	(0.0184)	(0.0193)	(0.0227)	(0.0250)	(0.0286)	(0.0297)
1/2 Years After	0.00645	0.0181	0.0136	0.0224	-0.00333	0.00963
	(0.0155)	(0.0158)	(0.0185)	(0.0201)	(0.0239)	(0.0241)
3/More Years after	0.0241	0.0360**	0.0112	0.0204	0.0388*	0.0516**
	(0.0157)	(0.0161)	(0.0178)	(0.0198)	(0.0232)	(0.0229)
1/2 Years Before	-0.0172	-0.0191	0.00302	0.00175	-0.0468**	-0.0487**
	(0.0146)	(0.0146)	(0.0178)	(0.0178)	(0.0212)	(0.0212)
Mother Absent, Father Deceased						
This Year	0.00215	0.0178	-0.00467	0.00794	-0.0939	-0.0752
	(0.0399)	(0.0405)	(0.0407)	(0.0427)	(0.0863)	(0.0871)
1/2 Years After	0.0658*	0.0822**	0.0580	0.0716*	-0.0325	-0.0138
	(0.0377)	(0.0372)	(0.0369)	(0.0391)	(0.0692)	(0.0674)
3/More Years After	0.0391	0.0541	0.0185	0.0315	-0.0230	-0.00813
	(0.0464)	(0.0470)	(0.0422)	(0.0424)	(0.0799)	(0.0812)
1/2 Years Before	0.0522	0.0484	0.0327	0.0287	-0.0250	-0.0233
	(0.0320)	(0.0322)	(0.0359)	(0.0366)	(0.0606)	(0.0612)
Father Absent, Mother Deceased						
This Year	-0.0135	0.000566	0.0127	0.0200	-0.0485	-0.0273
	(0.0530)	(0.0523)	(0.0534)	(0.0531)	(0.0792)	(0.0774)
1/2 Years After	-0.0196	-0.00648	-0.0166	-0.00975	-0.0289	-0.0116
	(0.0526)	(0.0532)	(0.0641)	(0.0660)	(0.0843)	(0.0837)
3/More Years After	-0.0632	-0.0505	-0.0655	-0.0589	-0.0702	-0.0549
	(0.0500)	(0.0508)	(0.0801)	(0.0823)	(0.0581)	(0.0592)
1/2 Years Before	-0.0176	-0.0186	-0.0939	-0.0929	0.0268	0.0234
	(0.0440)	(0.0442)	(0.0604)	(0.0608)	(0.0607)	(0.0613)
Base Category	At least 1 Present	Both Present	At least 1 Present	Both Present	At least 1 Present	Both Present
N	44,217	44,217	22,687	22,687	21,530	21,530
R-squared	0.146	0.146	0.085	0.085	0.222	0.223
No. YAs	4,084	4,084	2,099	2,099	1,985	1,985

Source: Own calculation using CAPS data about the young adults in Waves 1-4.

Notes: All regressions include a full set of indicators for age. The data are weighted to account for sample design as well as individual and household non-response. Robust standard errors are in parentheses, * p<0.05, ** p<0.01, *** p<0.001

Coloured children who become double orphans perform poorly in the year that their remaining parent died and in the two years before that. This is in line with the finding of Evans and Miguel (2007), who demonstrated that Kenyan double orphans fell behind in school prior to the death of their remaining parent. Black YAs do worse three or more years after becoming a double orphan. Coloured YAs also perform relatively poorly after becoming a double orphan though the coefficients are not statistically significant. They are, however, larger than the analogous coefficients representing movement into other foster child categories suggesting that coloured double orphans are the most disadvantaged three or more years after being fostered compared to the other categories of foster children.

A possible reason why being orphaned by both parents in the coloured sample appeared to have no effect on the probability of advancing in the main fixed effects results is because coloured foster YAs did worse in the two years prior to being fostered. Furthermore, after they were fostered, the negative effect on the probability of advancement of coloured YAs subsided. These factors may have balanced out the overall effect of being orphaned by both parents on schooling.

None of the coefficients of the indicators representing the years around when YAs became a maternal orphan with an absent living father are significant in either the black or coloured samples. The magnitudes and signs of the coefficients suggest that becoming a paternal orphan who lives apart from their mother is similar to moving apart from both living parents in the black sample; the probability of advancing is positive after being fostered though the impact subsides. Becoming a foster child with a deceased mother and absent father has a similar effect to becoming a double orphan in both the black and coloured samples; it lowers the probability of advancing after fostering and the effect is cumulative.

5.3.3. Summary and Discussion

In this section I find that there is no evidence that not living with one's parents has a significant effect on the probability of advancing. This is the case regardless of the type of foster child one becomes and who they are being compared to. This estimate is based only on the school outcomes of YAs who became a foster child or moved back in with biological parents between the ages 7-17. The results suggest that the cross-sectional estimates may suffer from missing variables bias.

On the other hand, there is some evidence of non-constant effects of becoming a foster child. Separating from parents is disadvantageous after the age of 13. On the other hand, becoming a foster child when one's parents are still alive is good for progress through school after the age of 13. Double orphans and maternal orphans also fall behind when they are older.

One surprising result is that double orphans do relatively better than biological children before the age of 13. Since there is little variation in advancement rates at primary school (Section 5.1.2), being orphaned by both parents between the ages of 7 and 13 may still have an adverse effect on YAs' schooling. It is possible that the effect of separating from one's parents at primary school reveals itself in school assessment, and/or the effect becomes evident later.

There is also evidence of a positive effect of separating from parents a number of years afterwards based on the entire sample and in the coloured sample of YAs. In the black sample, becoming a double orphan confers a large negative effect on the probability of advancing three years after they are placed in foster care. In the coloured sample, double orphans and foster children who live apart from both living parents perform poorly in the two years prior to being fostered. Separating from living parents improves school outcomes three or more years afterwards, whereas being orphaned is the worst in the year that their remaining parent died and this effect subsides.

These findings may be able to explain why there is evidence of differences between foster and biological children in the cross-sectional analysis. Firstly, the analysis of advancement before and after fostering can be used to explain why, in the cross-sectional analysis, double orphans do the worst relative to biological children; in the coloured sample, they were already behind when they were fostered, and there is evidence that black double orphans are disadvantaged a number of years after being fostered and when they are older than 13.

Secondly, the reason that coloured YAs with two absent parents have completed relatively few grades in the cross-sectional analysis may be because they were already behind before they were fostered. They experience a higher probability of advancing three or more years after they have been fostered and after the age of 13.

Although fixed effects analyses mitigate missing variables bias caused by time-invariant unobservable factors, endogeneity may be caused by time-variant missing variables that are relevant for progression through school. Information about changes in socioeconomic status as well as whether children changed schools when they became foster children are not accounted for in this analysis. A school change that happens at the same time that children move away from their parents has the potential to bias the results.[40] Similarly, children who moved into households with a higher socioeconomic status than the household of their biological parents may perform better.

[40] Children who move to better schools when they are placed into foster care may struggle. The opposite holds true for children moving to poor performing schools.

6. CONCLUSION

The purpose of this paper was to assess whether there is evidence that foster children fall behind in their schooling. I do this using two main methodologies. First, I compare the educational outcomes of foster children to that of biological children based on cross-sectional data from Wave 1 of CAPS. This is followed by an assessment of the schooling outcomes of YAs who became foster children between the ages of 7 and 17 using panel data from Waves 1-4 of CAPS. Four specifications of living arrangements are used in both cases.

A large proportion of the sample of 7-17 year old children is foster children. This is partly due to historical reasons, related to restrictions on movement during apartheid, cultural reasons and HIV-related deaths of parents. Whether parents are alive or deceased is important because firstly, absent living parents can still be involved in their biological children's schooling and secondly, because living parents are more likely to have sent their children away to improve their access to better schools (deceased parents may have done this before they died).

Because biological children may also have a deceased or absent living parent, the living arrangements of biological children are important when comparing foster children's school outcomes to theirs. Foster children have accumulated fewer grades than children who live with both their parents and those who live with their fathers, controlling for parental death and other household-level characteristics. However, they have not completed fewer grades than children who reside with just their mothers. When foster children are compared to the biological children who live with both parents in hybrid households (using a household fixed effects model), the differences are larger.

Foster children fall into four main categories based on parental death and absence. The category that one falls into is highly relevant for the reasons outlined above. Double orphans have completed more than a grade less than all the groups of biological children. They also perform worse relative to all the other foster children. There is also evidence that children with two absent parents have progressed slowly, but only compared to biological children who live with both their parents.

With the exception of double orphans, the differences in grade attainment between foster and biological children are only statistically significant when comparing coloured children; only black double orphans have completed fewer grades than other children, though the difference is smaller relative to that in the coloured sample. Possible reasons for this are; (1) social rules within the black community in Cape Town override 'the Cinderella effect', (2) given that more black foster children than black biological children were born in the Eastern Cape, and that many of their parents remain living there, more black children than coloured children are placed in foster care to attend better

schools in Cape Town, and, (3) more black absent mothers than coloured absent mothers influence their children's performances at school.

The findings of the cross-sectional analysis are not confirmed by those found in the individual fixed effects analysis, which controls for time-consistent unobservable characteristics like the value that parents place on children's education and children's ability; specifically, the probability of advancing when YAs are separated from their parents and the probability of advancing when they stay with their parents are not significantly different.

When the effects of moving into each of the four categories of foster children are examined, there are also no statistically significant results. On the other hand, maternal death and paternal death do lower the probability of advancing among the black and coloured YAs respectively, regardless of whether or not parental death is accompanied by fostering. These results suggest that omitted variables bias between foster and biological children is a problem in the cross-sectional analysis.

Although foster YAs do not appear to progress slower when they have separated from parents, the effects of being placed into foster care may be non-constant. Foster YAs between the ages of 7 and 13 do not appear to be affected by the separation from their parents. On the other hand, black and coloured foster YAs have a lower probability of advancing a grade between the ages of 13 and 17. In addition, there is evidence of a positive and significant effect three years after they separate from parents. This effect is only found in the coloured sample but not in the black sample of YAs, which is in line with the findings based on the cross-sectional data.

Based on the main individual fixed effects results, YAs fostered from two absent parents and YAs who become double orphans do not achieve a lower probability of advancing once they have been fostered, even though they compare poorly relative to biological children in the cross-sectional analysis. I show how the findings about the non-constant effects of becoming a foster child can give one a sense of why this is the case.

After the age of 13, being separated from two living parents is beneficial relative to co-residence with single parents. Among the coloured YAs with two absent parents, there is a positive and significant effect on school performance a few years after becoming a foster child, which is unexpected given that in the cross-sectional analysis, children who live apart from both living parents have completed fewer grades than children who live with them.

On the other hand, the findings about the non-constant effects of separating from parents show that the coloured YAs also perform poorly in the two years before they were fostered, suggesting that

coloured children with two absent parents have completed fewer grades than biological children because they had fallen behind beforehand. This would confirm Zimmerman's (2003) view that South African foster children with absent living parents, are better off than they had previously been.

Note that this is not the case among the black YAs who were separated from two living parents. This is somewhat surprising, given that information from Wave 1 suggests that black foster children are expected to have been placed in foster care to gain access to good schools (Section 4.1.1). One explanation why they do not benefit afterwards is that the schools that black foster children attend in Cape Town may also provide a substandard education so their performance does not improve that much. Alternatively, the improvement in the performance of black foster YAs may only become evident when comparing their matriculation results to the average matriculation results of the school that they left.

An explanation for the discrepancy between the results based on the cross-sectional and panel data in relation to black double orphans, is that being orphaned by both parents is not consistently bad after YAs are orphaned by their remaining parent; black double orphans perform particularly poorly three years after their remaining parent died. In addition, becoming a double orphan is only disadvantageous after the age of 13, which is when most of the variation in school outcomes occurs in the sample.

The difference in the grade attainment between coloured double orphans and biological children is statistically significant in the sample of children from the household roster, but not in the sample of YAs because few coloured YAs are double orphans, even though the estimate is larger (they fall behind by more than two grades). Since the age-based panel data sample about YAs includes information from Waves 2-4 as well, it is possible that more coloured YAs became double orphans by the time that they reached age 17.

Based on the panel data, I find that coloured double orphans do worse in the year that they are fostered and the two years before that. The effect subsides afterwards but it is larger than the coefficients representing the subsequent effect of becoming any of the other types of foster children. This suggests that part of the reason why coloured double orphans have completed fewer grades than biological children is due to prior circumstances and the disruption to their schooling in the year that they are orphaned by their remaining parent.

In the YA sample, a statistically significant difference in the grade attainment between YAs living with both parents and maternal orphans with absent fathers was found. The difference is also statistically significant amongst the coloured YAs. Furthermore, maternal orphans with absent living

fathers score lower on the LNE test than biological children living with both their parents and with single parents. No non-constant effects of becoming a maternal orphan with an absent father are found using the panel data. The coefficients representing the effect of moving into this category on their subsequent performance are negative and decrease with the number of years since they separated from their parents.

With the cross-sectional dataset, there is no evidence that paternal orphans with absent mothers perform worse relative to biological children. In addition, the fixed effects estimate using the panel data (Section 5.3.1) is not statistically significant at the 5% level. However, paternal orphans with absent mothers do achieve a higher probability of advancing three years afterwards. These results may imply that becoming a paternal orphan with an absent mother is at least as good as staying with both one's parents.

That both children with absent parents and paternal orphans with absent mothers do not do worse after separating from their parents, may have something to do with them both having absent living mothers. Based on descriptive statistics about the involvement of present and absent parents (Section 4.1.2), a large proportion of absent mothers continue to play a role in the lives of their children. In contrast, double orphans and maternal orphans with absent fathers, who both perform worse after separating from their parents, are forced to do without any support from their mothers, which in general is higher than the support offered by fathers. Given that many of these differences are not statistically significant, this observation cannot be verified. It may be worth investigating this matter further in future studies about foster children based on larger longitudinal datasets where more children move into (or out of) each foster child category between waves.

The approaches used in this analysis are not without drawbacks. As already mentioned, by measuring the difference between the attainment of foster children and biological children at one point in time using cross-sectional data, one becomes susceptible to conflating relevant but immeasurable factors with the effect of being a foster child. Household fixed effects can help eliminate bias caused by missing variables at the level of the household though it often leads to small samples, which leads to a loss of power. While longitudinal approaches manage to mitigate the bias caused by differences between individuals, they cannot solve the problem of time-variant missing variables bias.
Grade completion and advancement are not ideal measures of current performance, as was illustrated by the estimates of the differences in LNE scores between foster and biological children. They are binary measures and are unable to pick up the degrees of performance of those who passed and those who failed. Furthermore, there is a stochastic element to grade progression among black learners in South Africa (Lam et al, 2008) and because exams are not standard before matric, grade progression reflects learning to varying degrees. In addition, there is little evidence that grade progression before

matric may be able to predict future success in the labour market. In particular, unemployment is higher and earnings are lower for children who have not completed matric (Seekings, 2007). It is not surprising then that more effort occurs as learners approach this level. Grade progression, which is one of two measures available from both the household dataset and the panel dataset, is therefore a limited measure of educational performance.

Nevertheless, the individual fixed effects analysis, which compares the educational outcomes of children over their lifetime, provides a unique opportunity to understand whether the disadvantage in grade attainment of foster children relative to biological children, found on the basis of cross-sectional data, occurred because children were placed into foster care or because of other unobservable differences between foster and biological children. Although no statistically significant differences were found between the school outcomes when YAs were foster children and when they were biological children, an examination of the non-constant effects of fostering could be used to explain some of the results based on the cross-sectional data.

In particular, they suggest that part of the reason why coloured children with two absent living parents and coloured double orphans have completed fewer grades than coloured children who live with both parents is because they fell behind in the years before their remaining parent passed away. In addition, children with two absent living parents and paternal orphans with absent mothers do better a number of years after having been fostered. Therefore, separating from parents will not necessarily have an adverse effect on the education of children if their parents are still alive; in fact, it might even be beneficial,

Other important contributions of this paper are that; (1) who foster children are compared to matters; in general, co-residence with mothers is only worse than being orphaned by both parents, (2) foster children are not a homogenous group, and (3) with the exception of double orphans, black foster and biological children do not appear to differ much in terms of their school outcomes.

7. APPENDIX

Table A1: Movement of foster children with two absent parents by race

	Black		Coloured	
	Mean	SE	Mean	SE
Born in:				
Cape Town	0.488	0.034	0.961	0.013
Western Cape	0.017	0.012	0.018	0.008
Eastern Cape	0.445	0.034	0.008	0.006
Moved to Cape Town:				
At Birth	0.507	0.034	0.973	0.012
Age 1-6	0.093	0.019	0.013	0.009
Age 7-12	0.211	0.029	0.007	0.005
Age 13-17	0.189	0.026	0.007	0.005
Moved into Current Residence:				
At Birth	0.315	0.031	0.553	0.036
Age 0-6	0.154	0.024	0.152	0.026
Age 7-12	0.242	0.030	0.183	0.029
Age 13-17	0.289	0.030	0.112	0.021

Source: Own calculation using CAPS data from the household roster in Wave 1
Note: The data are weighted to account for sample design and household non-response.

Table A2: Characteristics of the black YAs aged 14-17, Wave 1

	Mother				Father			
	Present		Absent		Present		Absent	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Support At School								
Most Important Influence on Performance	0.756	0.019	0.482	0.046	0.246	0.026	0.046	0.024
Helped with Homework	0.224	0.018	0.042	0.017	0.101	0.017	0.000	0.000
Provided Money in Past 12 Months	0.863	0.014	0.426	0.046	0.875	0.019	0.264	0.043
Financial Support in Past 12 Months								
Bought Clothing for Children in Past 12 Months	0.898	0.012	0.414	0.046	0.890	0.018	0.275	0.043
Bought Gifts for children in Past 12 Months	0.671	0.020	0.329	0.044	0.582	0.029	0.187	0.040
Ate a Meal Together in Past 12 Months								
Always	0.976	0.006	0.016	0.011	0.925	0.018	0.000	0.000
Often	0.011	0.004	0.184	0.036	0.043	0.016	0.105	0.030
Seldom	0.008	0.004	0.542	0.046	0.025	0.009	0.356	0.046
Never	0.005	0.003	0.258	0.041	0.007	0.005	0.539	0.049
Discussed Personal Issues in the Last 12 Months								
Always	0.345	0.020	0.007	0.007	0.342	0.028	0.015	0.015
Often	0.214	0.018	0.098	0.026	0.101	0.017	0.085	0.028
Seldom	0.205	0.018	0.494	0.046	0.145	0.020	0.282	0.043
Never	0.237	0.018	0.401	0.045	0.411	0.029	0.617	0.047
Characteristics								
Education	8.248	0.134	8.736	0.282	6.905	0.238	8.452	0.410
Employed	0.587	0.021	0.430	0.046	0.733	0.025	0.572	0.048
Marital Status	0.550	0.021	0.503	0.046	0.944	0.012	0.442	0.049
Lives in CT			0.426	0.046			0.430	0.048
Lives in WC			0.014	0.010			0.021	0.015
Lives in EC			0.492	0.046			0.308	0.044
Lives in Gauteng			0.032	0.016			0.129	0.035
N	597		125		431		320	

Source: Own calculation using CAPS data from the young adult sample and household roster in Wave 1
Note: The data are weighted to account for sample design as well as individual and household non-response.

Table A2: Characteristics of the coloured YAs aged 14-17, Wave 1

	Mother				Father			
	Present		Absent		Present		Absent	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Support At School								
Most Important Influence on Performance	0.669	0.018	0.282	0.053	0.266	0.022	0.043	0.023
Helped with Homework	0.254	0.016	0.065	0.029	0.213	0.021	0.055	0.025
Provided Money in Past 12 Months	0.790	0.015	0.518	0.058	0.807	0.018	0.386	0.050
Financial Support in Past 12 Months								
Bought Clothing for children	0.910	0.011	0.656	0.054	0.816	0.018	0.435	0.050
Bought Gifts for children	0.767	0.015	0.541	0.058	0.746	0.020	0.354	0.049
Ate a Meal Together in Past 12 Months								
Always	0.967	0.007	0.052	0.026	0.941	0.011	0.027	0.015
Often	0.020	0.005	0.435	0.058	0.040	0.009	0.207	0.042
Seldom	0.005	0.003	0.261	0.050	0.011	0.005	0.280	0.047
Never	0.007	0.003	0.252	0.049	0.009	0.004	0.486	0.051
Discussed Personal Issues in the Last 12 Months								
Always	0.222	0.015	0.012	0.012	0.131	0.016	0.049	0.025
Often	0.307	0.017	0.224	0.049	0.235	0.021	0.045	0.020
Seldom	0.257	0.016	0.301	0.053	0.247	0.021	0.253	0.046
Never	0.214	0.015	0.463	0.058	0.387	0.023	0.653	0.050
Characteristics								
Education	8.768	0.108	8.720	0.340	9.057	0.157	9.246	0.322
Employed	0.677	0.017	0.585	0.057	0.861	0.015	0.662	0.047
Marital Status	0.739	0.016	0.453	0.058	0.948	0.011	0.440	0.050
Lives in CT			0.924	0.028			0.817	0.043
Lives in WC			0.046	0.023			0.064	0.024
Lives in EC			0.000	0.000			0.042	0.026
Lives in Gauteng			0.008	0.008			0.024	0.014
N	788		80		493		107	

Source: Own calculation using CAPS data from the young adult sample and household roster in Wave 1
Note: The data are weighted to account for sample design as well as individual and household non-response.

Table A3: Characteristics of the absent parents of foster YAs aged 14-17, Wave 1

	Mother		Father	
	Mean	SE	Mean	SE
Support At School				
Most Important Influence on School Performance	0.3906	0.0405	0.078	0.0354
Helped with Homework	0.0373	0.0163	0.0599	0.0351
Provided Money for School in Past 12 Months	0.5052	0.0419	0.3551	0.0554
Financial Support				
Bought Clothing for Children in the Past 12 Months	0.5679	0.041	0.4448	0.0569
Bought Gifts for children in the Past 12 Months	0.4491	0.0419	0.316	0.0553
Ate a Meal Together in Past 12 Months				
Always	0.0217	0.0129	0.0267	0.0187
Often	0.3256	0.0405	0.2089	0.0513
Seldom	0.4289	0.0411	0.3679	0.0539
Never	0.2237	0.0341	0.3965	0.0541
Discussed Personal Issues in the Last 12 Months				
Always	0.0131	0.0097	0.0785	0.0395
Often	0.1761	0.0324	0.057	0.0241
Seldom	0.3907	0.0407	0.2522	0.0474
Never	0.42	0.0414	0.6122	0.0557
Characteristics				
Education	8.5557	0.2475	8.6554	0.4241
Employed	0.5064	0.0419	0.5808	0.0561
Marital Status	0.4936	0.0419	0.553	0.0566
Lives in CT	0.7114	0.035	0.6305	0.0521
Lives in WC	0.0339	0.0158	0.0793	0.0342
Lives in EC	0.2089	0.0296	0.1882	0.0371
Lives in Gauteng	0.0246	0.0111	0.0551	0.0211
N	163		94	

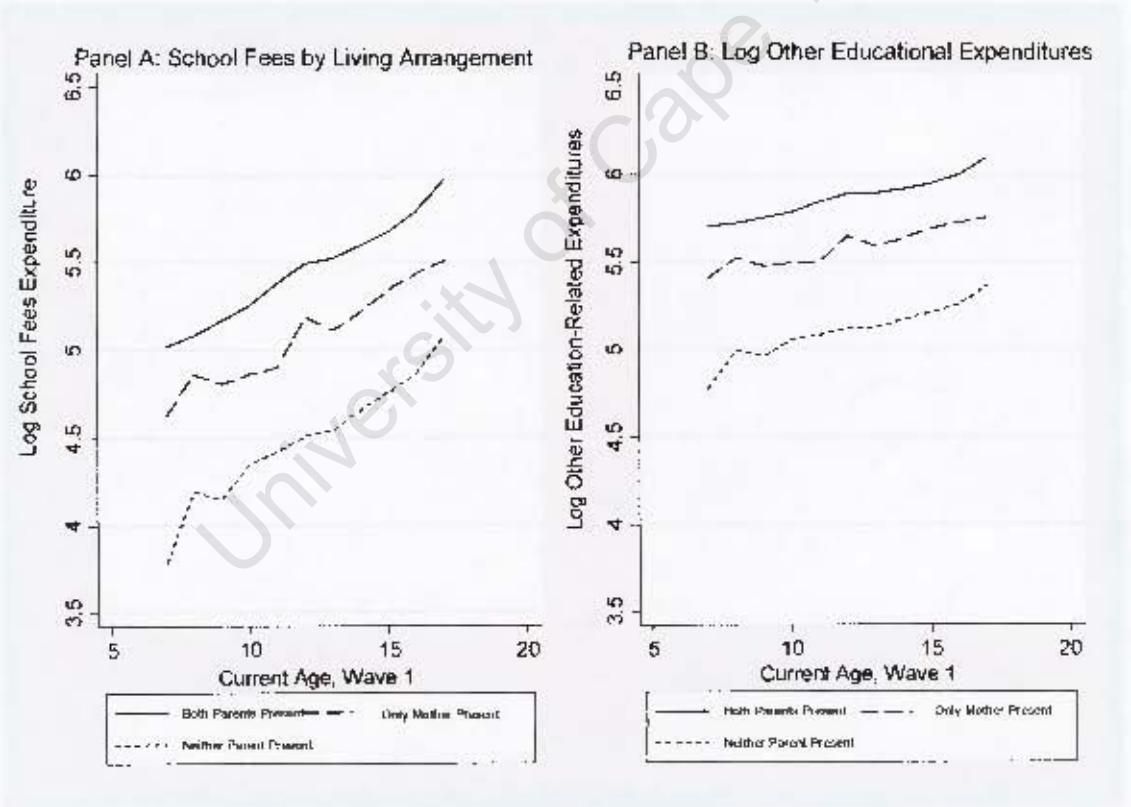
Source: Own calculation using CAPS data from the young adult sample and household roster in Wave 1
Note: The data are weighted to account for sample design as well as individual and household non-response.

Table A5: The Support that Foster YAs Receive from Other Household Members, Wave 1

	All Biological Children		Both Parents Present		Only Mother Present		Neither Parent Present	
	Mean	Std. Err.	Mean	Std. Err.	Mean	Std. Err.	Mean	Std. Err.
Most Influence on School Performance								
Grandparent	0.1896	0.060245	0.031	0.01	0.065	0.01	0.068	0.03
Brothers or Sisters	0.0312	0.030906	0.039	0.01	0.028	0.01	0.032	0.03
Help with Homework								
Grandparent	0.0299	0.02968	0.016	0.01	0.012	0.01	0.012	0.01
Brothers or Sisters	0.1367	0.05282	0.187	0.02	0.161	0.01	0.265	0.05
Other Family Member	0.2046	0.070285	0.047	0.01	0.079	0.01	0.052	0.03
No Help	0.1973	0.064143	0.284	0.02	0.329	0.02	0.285	0.05
N	1482		762		630		90	

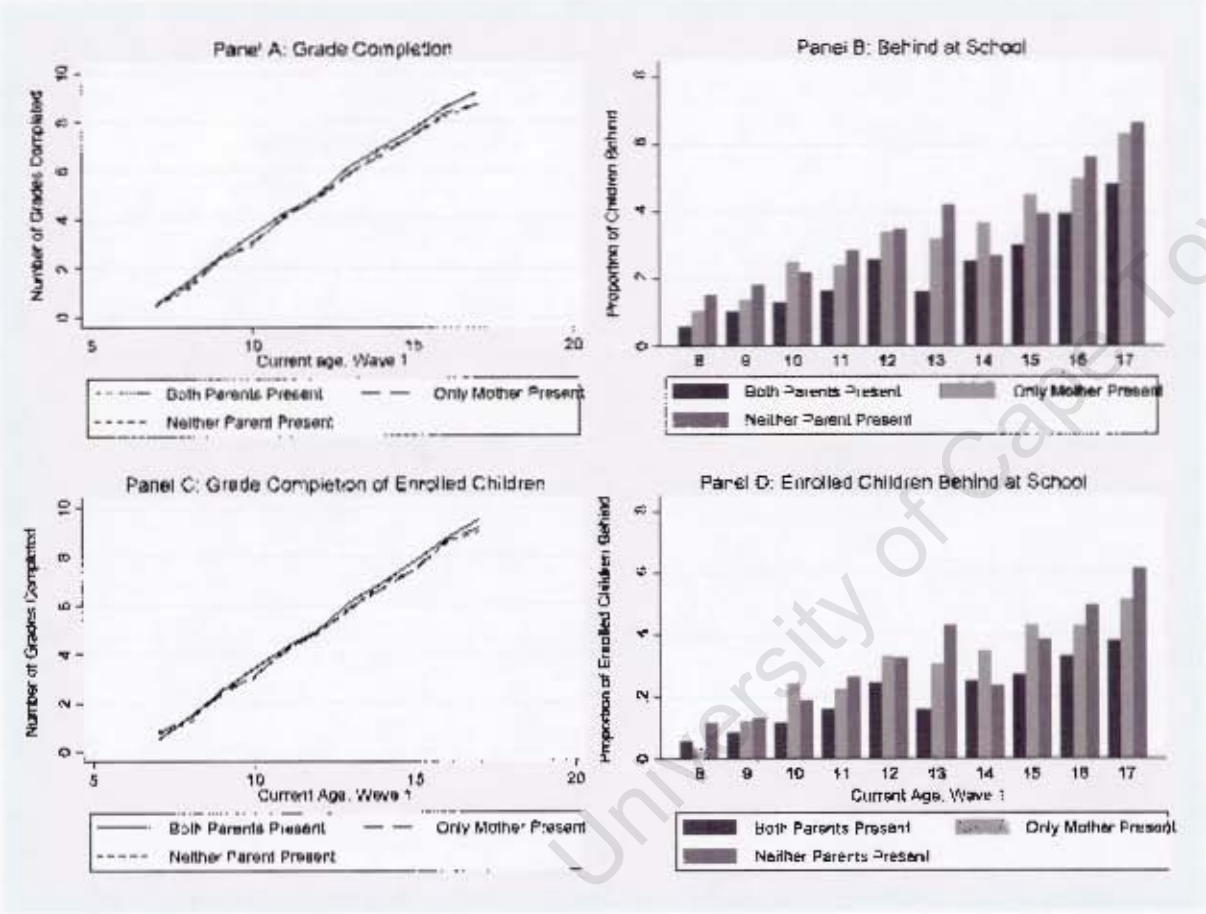
Source: Own calculation using CAPS data from the young adult sample and household roster in Wave 1
Note: The data are weighted to account for sample design as well as individual and household non-response.

Figure A1: Regression Smoothed Educational Expenditures



Source: Own calculation using CAPS data from the household roster in Wave 1
Note: Educational expenditures are regressed on age and income and the mean of the predicted value of educational expenditures at each age level is graphed. The data are weighted to account for sample design and household non-response.

Figure A2: Progress at school by living arrangement



Source: Own calculation using CAPS data from the household roster in Wave 1
Note: Panel A depicts the mean grade completion at each age level and Panel B depicts the mean grade completion of only those children who were enrolled at the time. Panel B represents the proportion of children who were behind their appropriate grade at each age level and Panel D represents this for just children who are enrolled. The data are weighted to account for sample design and household non-response.

Table A4: OLS results with household-level controls by race, Specifications 1 and 3

Grade Completion	Specification 1		Specification 3	
	Black	Coloured	Black	Coloured
Foster Child	0.0232	-0.198***		
	(0.0825)	(0.0746)		
Both Parents Deceased			-0.861***	-1.396
			(0.229)	(1.127)
Both Parents Absent			0.0474	-0.176**
			(0.0904)	(0.0775)
Mother Absent, Father Deceased			0.230	-0.377
			(0.165)	(0.342)
Father Absent, Mother Deceased			-0.469***	0.113
			(0.176)	(0.218)
Mother Deceased	-0.150	-0.117	0.417***	-0.0983
	(0.143)	(0.183)	(0.121)	(0.128)
Father Deceased	0.0274	-0.184	0.0587	-0.0909
	(0.0902)	(0.121)	(0.101)	(0.108)
Household-level Controls	Yes	Yes	Yes	Yes
N	1,998	2,478	1,998	2,478
R-squared	0.838	0.874	0.839	0.875

Source: Own calculation using CAPS data from the household roster in Wave 1

Notes: All regressions include a full set of indicators for age a dummy variable for female children. The data are weighted to account for sample design and household non-response. Robust standard errors are in parentheses, * p<0.05, ** p<0.01, *** p<0.001. Household-level controls include the numbers of adults and children in the household, a dummy variable representing the presence of pensioners, mean education level of adults in the household, log income per capita and population group.

Table A7: Household Fixed Effects results by race, Specifications 1 and 3

Grade Completion	Specification 1		Specification 3	
	Black	Coloured	Black	Coloured
Foster Child	0.0771		-0.367*	
	(0.109)		(0.186)	
Both Parents Deceased		-0.0810		-2.195**
		(0.413)		(1.054)
Bath Parents Absent		0.0456		-0.372*
		(0.145)		(0.191)
Mother Absent, Father Deceased		0.170		-0.300
		(0.207)		(0.630)
Father Absent, Mother Deceased		0.173		0.287
		(0.409)		(0.611)
Mother Deceased	-0.409**	-0.350	0.215	0.356
	(0.194)	(0.321)	(0.494)	(0.321)
Father Deceased	0.0122	0.0204	-0.341	-0.158
	(0.154)	(0.200)	(0.264)	(0.246)
Gender	0.297***	0.298***	0.249***	0.243***
	(0.0743)	(0.0739)	(0.0673)	(0.0675)
N	2,035	2,035	2,491	2,491
R-squared	0.877	0.877	0.902	0.904
No. Children	1,118	1,118	1,403	1,403

Source: Own calculation using CAPS data from the household roster in Wave 1

Note: All regressions include a full set of indicators for age. The data are weighted to account for sample design and household non-response. Cluster robust standard errors are in parentheses, * p<0.05, ** p<0.01, *** p<0.001

Table A8: Household Fixed Effects results with controls for educational expenditures

Grade Completion	Panel A		Panel B	
	1	2	3	4
Foster Child	-0.0493	-0.222*		
	(0.0908)	(0.113)		
Both Parents Deceased			-0.848	-1.255**
			(0.577)	(0.630)
Both Parents Absent			-0.113	-0.279**
			(0.105)	(0.123)
Mother Absent, Father Deceased			0.211	-0.0543
			(0.269)	(0.284)
Father Absent, Mother Deceased			0.215	-0.101
			(0.440)	(0.484)
Only Mother Present		-0.281**		-0.295***
		(0.111)		(0.111)
Only Father Present		-0.243		-0.330*
		(0.175)		(0.189)
Mother Deceased	-0.312	-0.306	-0.0626	0.0954
	(0.256)	(0.257)	(0.367)	(0.409)
Father Deceased	-0.0419	0.0214	0.0372	0.144
	(0.175)	(0.169)	(0.186)	(0.184)
Log School Fees	0.142***	0.140***	0.142***	0.140***
	(0.0406)	(0.0405)	(0.0392)	(0.0391)
Log Other Education Expenditure	-0.0161	-0.0206	-0.0184	-0.0223
	(0.0275)	(0.0271)	(0.0272)	(0.0269)
Gender	0.120**	0.118**	0.120**	0.117**
	(0.0535)	(0.0535)	(0.0535)	(0.0534)
N	3,885	3,885	3,885	3,885
R-squared	0.915	0.915	0.916	0.916
No. Children	2,290	2,290	2,290	2,290

Source: Own calculation using CAPS data from the household roster in Wave 1

Note: All regressions include a full set of indicators for age. The data are weighted to account for sample design and household non-response. Cluster robust standard errors are in parentheses, * p<0.05, ** p<0.01, *** p<0.001

Table A9: Household Fixed Effects results by race with controls for educational expenditures

	Panel A				Panel B			
Grade Completion	Specification 1		Specification 2		Specification 3		Specification 4	
	Black	Coloured	Black	Coloured	Black	Coloured	Black	Coloured
Foster Child	0.173	-0.204	-0.190	-0.359**				
	(0.119)	(0.126)	(0.184)	(0.138)				
Both Parents Deceased					0.337	-2.769**	-0.0526	-3.155***
					(0.524)	(1.075)	(0.581)	(1.092)
Both Parents Absent					0.133	-0.242*	-0.203	-0.377***
					(0.164)	(0.132)	(0.206)	(0.139)
Mother Absent, Father Deceased					0.242	0.285	-0.253	0.0110
					(0.189)	(0.622)	(0.286)	(0.632)
Father Absent, Mother Deceased					0.415	-0.117	0.249	-0.485
					(0.558)	(0.517)	(0.600)	(0.592)
Only Mother Present			-0.549***	-0.274**			-0.575***	-0.264**
			(0.208)	(0.117)			(0.213)	(0.111)
Only Father Present			-0.335	-0.246			-0.271	-0.355*
			(0.328)	(0.187)			(0.371)	(0.199)
Mother Deceased	-0.337	-0.450	-0.386*	-0.414	-0.512	0.310	-0.667	0.531
	(0.219)	(0.531)	(0.231)	(0.532)	(0.465)	(0.329)	(0.550)	(0.371)
Father Deceased	-0.0795	0.0210	0.0482	0.0858	-0.104	0.229	0.119	0.327
	(0.159)	(0.313)	(0.163)	(0.307)	(0.192)	(0.290)	(0.213)	(0.293)
Log School Fees	0.317***	0.0887*	0.314***	0.0883*	0.314***	0.0880**	0.312***	0.0862*
	(0.0653)	(0.0469)	(0.0661)	(0.0466)	(0.0664)	(0.0444)	(0.0671)	(0.0443)
Log Other Education Expenditure	-0.0447	0.00759	-0.0517	0.00187	-0.0449	-0.00254	-0.0529	-0.00760
	(0.0331)	(0.0413)	(0.0334)	(0.0401)	(0.0332)	(0.0407)	(0.0335)	(0.0398)
Gender	0.196***	0.0857	0.189***	0.0839	0.198***	0.0855	0.192***	0.0832
	(0.0715)	(0.0711)	(0.0719)	(0.0710)	(0.0719)	(0.0723)	(0.0720)	(0.0721)
N	1,737	2,148	1,737	2,148	1,737	2,148	1,737	2,148
R-squared	0.884	0.932	0.885	0.932	0.884	0.934	0.885	0.935
No. Children	1,003	1,287	1,003	1,287	1,003	1,287	1,003	1,287

Source: Own calculation using CAPS data from the household roster in Wave 1

Note: All regressions include a full set of indicators for age. The data are weighted to account for sample design and household non-response. Cluster robust standard errors are in parentheses, * p<0.05, ** p<0.01, *** p<0.001

Table A50: OLS results with household-level controls on the 14-17 year old YA sample in Wave 1 by race

	Panel A				Panel B			
Grade Completion	Specification 1		Specification 2		Specification 3		Specification 4	
	Black	Coloured	Black	Coloured	Black	Coloured	Black	Coloured
Foster Child	0.00950	-0.343**	0.0835	-0.462***				
	(0.136)	(0.160)	(0.154)	(0.165)				
Both Parents Deceased					-0.494	-1.669	-0.333	-2.071
					(0.424)	(1.458)	(0.450)	(1.457)
Both Parents Absent					0.0358	-0.319*	0.0840	-0.431**
					(0.165)	(0.184)	(0.176)	(0.183)
Mother Absent, Father Deceased					0.0440	-0.291	0.147	-0.562
					(0.278)	(0.564)	(0.279)	(0.573)
Father Absent, Mother Deceased					-0.283	-0.411	-0.168	-0.634*
					(0.406)	(0.298)	(0.471)	(0.345)
Only Mother Present			0.103	-0.241**			0.0981	-0.275***
			(0.127)	(0.0967)			(0.124)	(0.0911)
Only Father Present			0.160	-0.0898			0.0988	-0.198
			(0.217)	(0.171)			(0.237)	(0.151)
Mother Deceased	-0.0902	-0.0959	-0.103	-0.0888	0.261	0.156	0.197	0.277
	(0.233)	(0.299)	(0.241)	(0.339)	(0.291)	(0.219)	(0.341)	(0.259)
Father Deceased	0.0987	-0.387*	0.0651	-0.265	0.131	-0.309	0.0783	-0.135
	(0.127)	(0.213)	(0.138)	(0.227)	(0.153)	(0.197)	(0.164)	(0.207)
Household-level Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	863	1,034	863	1,034	863	1,034	863	1,034
R-squared	0.341	0.394	0.342	0.398	0.342	0.398	0.342	0.403

Source: Own calculation using CAPS data from the young adult sample and the household roster in Wave 1

Notes: All regressions include a full set of indicators for age. The data are weighted to account for sample design as well as individual and household non-response. Cluster robust standard errors are in parentheses, * p<0.05, ** p<0.01, *** p<0.001

Table A61: OLS on LNE scores among 14-17 year old YAs with household-level controls by race, Wave 1

	Panel A				Panel B			
LNE Scores	Specification 1		Specification 2		Specification 3		Specification 4	
	Black	Coloured	Black	Coloured	Black	Coloured	Black	Coloured
Foster Child	-0.773	-0.932	-0.770	-1.435				
	(0.716)	(0.857)	(0.935)	(0.934)				
Both Parents Deceased					0.340	3.656	-0.000127	2.357
					(2.565)	(2.849)	(2.828)	(2.953)
Both Parents Absent					-0.909	-1.515	-0.857	-1.823
					(0.908)	(1.098)	(1.027)	(1.118)
Mother Absent, Father Deceased					-0.449	3.484**	-0.206	2.765
					(1.494)	(1.574)	(1.799)	(1.722)
Father Absent, Mother Deceased					-1.042	-3.976*	-1.549	-4.832**
					(2.163)	(2.259)	(2.418)	(2.312)
Only Mother Present			0.117	-1.034*			0.224	-0.702
			(0.813)	(0.621)			(0.854)	(0.622)
Only Father Present			-0.564	-0.339			-0.579	-0.782
			(1.215)	(1.146)			(1.298)	(1.144)
Mother Deceased	-0.845	-0.527	-0.706	-0.507	-1.281	0.357	-0.716	0.938
	(1.102)	(1.166)	(1.134)	(1.244)	(1.889)	(1.683)	(2.073)	(1.804)
Father Deceased	-0.180	-0.868	-0.270	-0.351	-0.406	-2.132**	-0.577	-1.699*
	(0.775)	(0.800)	(0.845)	(0.812)	(0.877)	(0.916)	(1.017)	(0.945)
Household-level Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	816	951	816	951	816	951	816	951
R-squared	0.112	0.187	0.113	0.190	0.113	0.197	0.113	0.199

Source: Own calculation using CAPS data from the young adult sample and the household roster in Wave 1

Notes: All regressions include a full set of indicators for age and a dummy variable for female children. The data are weighted to account for sample design as well as individual and household non-response. Cluster robust standard errors are in parentheses, * p<0.05, ** p<0.01, *** p<0.001. Household-level controls include the numbers of adults and children in the household, a dummy variable representing the presence of pensioners, mean education level of adults in the household, log income per capita and population group.

Table A72: History of co-residence by race among 14-17 year old YAs, Wave 1

Grade Attainment	Each Parent		Both Parents		Other Household Members	
	Black	Coloured	Black	Coloured	Black	Coloured
Proportion of Life with Father	-0.182	0.123	-0.494	-0.554*	-0.449	-0.407
	(0.131)	(0.0934)	(0.428)	(0.296)	(0.452)	(0.331)
Proportion of Life with Mother	0.276	0.142	0.223	0.00119	0.164	0.143
	(0.178)	(0.182)	(0.209)	(0.193)	(0.212)	(0.210)
Proportion of Life with Parents			0.334	0.725**	0.285	0.632**
			(0.437)	(0.292)	(0.446)	(0.317)
Proportion of Life with Guardian or Alone					0.00133	0.0230
					(0.235)	(0.250)
Proportion of Life with Paternal Grandparents					-0.429	0.571***
					(0.383)	(0.147)
Proportion of Life with Maternal Grandparents					-0.0495	0.418***
					(0.169)	(0.117)
Mother Dead	-0.147	-0.275	-0.135	-0.196	-0.152	-0.146
	(0.211)	(0.275)	(0.210)	(0.266)	(0.210)	(0.229)
Father Dead	0.0776	-0.322	0.0734	-0.328	0.0593	-0.298
	(0.130)	(0.208)	(0.130)	(0.207)	(0.131)	(0.198)
Household-level Controls	Yes	Yes	Yes	Yes	Yes	Yes
N	823	956	823	956	823	956
R-squared	0.359	0.436	0.359	0.438	0.361	0.447

Source: Own calculation using CAPS data from the young adult sample in Wave 1

Notes: All regressions include a full set of indicators for age and a dummy variable for female children. The data are weighted to account for sample design as well as individual and household non-response. Cluster robust standard errors are in parentheses, * p<0.05, ** p<0.01, *** p<0.001. Household-level controls include the numbers of adults and children in the household, a dummy variable representing the presence of pensioners, mean education level of adults in the household, log income per capita and population group.

Table A83: The proportion of YAs under each living arrangement between ages 0-7, Waves 1-4

Ages	0	1	2	3	4	5	6	7
Both Parents Present	**2560**	**2539**	**2509**	**2440**	**2399**	**2322**	**2262**	**2210**
	61.61%	**61.11%**	**60.39%**	**58.74%**	**57.75%**	**55.90%**	**54.45%**	**53.21%**
Mothers Present	**1270**	**1260**	**1230**	**1237**	**1246**	**1246**	**1247**	**1236**
	30.57%	**30.32%**	**29.60%**	**29.78%**	**30.00%**	**30.00%**	**30.02%**	**29.76%**
Father Dead	16	32	50	65	79	99	119	134
	0.39%	0.77%	1.20%	1.56%	1.90%	2.38%	2.86%	3.23%
Father Absent	1189	1164	1120	1115	1108	1094	1074	1053
	28.62%	28.01%	26.96%	26.84%	26.67%	26.34%	25.85%	25.36%
Father's Vital Status Missing	65	64	60	57	59	53	54	49
Fathers Present	**43**	**50**	**57**	**55**	**62**	**83**	**91**	**105**
	1.03%	**1.20%**	**1.37%**	**1.32%**	**1.49%**	**2.00%**	**2.19%**	**2.53%**
Mother Dead	2	5	6	8	8	9	12	12
	0.05%	0.12%	0.14%	0.19%	0.19%	0.22%	0.29%	0.29%
Mother Absent	39	44	49	46	53	71	78	92
	0.94%	1.06%	1.18%	1.11%	1.28%	1.71%	1.88%	2.22%
Mother's Vital Status Missing	2	1	2	1	1	3	1	1
No Parents Resident	**282**	**306**	**359**	**422**	**447**	**503**	**554**	**602**
	6.79%	**7.36%**	**8.64%**	**10.16%**	**10.76%**	**12.11%**	**13.34%**	**14.50%**
Both Dead	0	0	1	2	2	3	4	6
	0.00%	0.00%	0.02%	0.05%	0.05%	0.07%	0.10%	0.14%
Both Absent	262	277	323	374	391	439	480	514
	6.31%	6.67%	7.77%	9.00%	9.41%	10.57%	11.56%	12.38%
Father Dead, Mother Absent	3	4	6	10	15	15	19	27
	0.07%	0.10%	0.14%	0.24%	0.36%	0.36%	0.46%	0.65%
Mother Dead, Father Absent	4	6	8	11	15	17	23	25
	0.10%	0.14%	0.19%	0.26%	0.36%	0.41%	0.55%	0.60%
Father's Vital Status Missing	12	17	19	23	23	29	28	29
Mother's Vital Status Missing	5	7	7	7	6	5	5	6
Total	**4155**	**4155**	**4155**	**4154**	**4154**	**4154**	**4154**	**4153**
Missing Information	0	0	0	1	1	1	1	2
Total	4155	4155	4155	4155	4155	4155	4155	4155

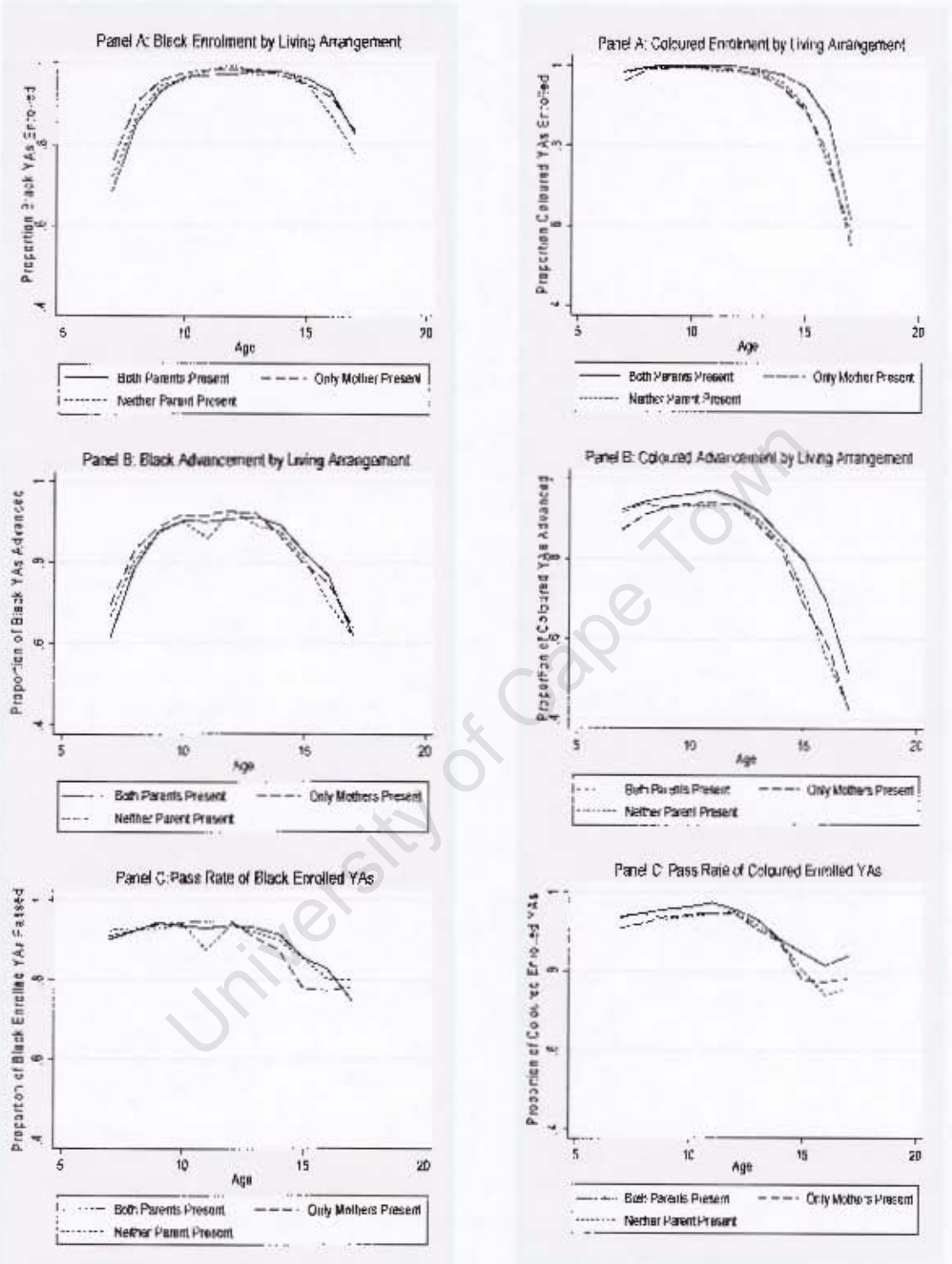
Source: Own calculation using CAPS data about young adults from Waves 1-4 data

Table A94: Logit Model of Attrition

Attrition	1	2
Foster Child at Age 13	0.102	0.189
	(0.127)	(0.135)
Only Mother Present at Age 13		0.220**
		(0.108)
Only Father Present at Age 13		-0.104
		(0.279)
Female	0.0690	0.0654
	(0.0984)	(0.0981)
Coloured	-0.0194	0.000337
	(0.101)	(0.101)
Age at Wave 1	-0.429***	-0.428***
	(0.0185)	(0.0186)
Constant	5.527***	5.419***
	(0.368)	(0.379)
N	4,140	4,140

Source: Own calculation using data about young adults from Waves 1-4 of CAPS
Notes: The data are weighted to account for sample design as well as individual and household non-response. Cluster robust standard errors are used.

Figure A3: School Attainment by Living Arrangement and Race, Waves 1-4



Source: Own calculation using data about young adults from Waves 1-4 of CAPS
Notes: Panel A, Panel B and Panel C represent the enrolment rate, advancement rate and pass rate when enrolled respectively of Black and Coloured YAs at each age level. The data are weighted to account for sample design as well as individual and household non-response.

Table A105: Sample Statistics of the panel data sample of YAs aged 7-17, Waves 1-4

	Mean	Standard Deviation			n
		Overall	Between	Within	
Pass A Grade	0.8273	0.3780	0.1528	0.3458	4155
Pass if Enrolled	0.8995	0.3007	0.1087	0.2816	4148
Enrol	0.9210	0.2698	0.1210	0.2411	4155
Grades Completed	5.0711	3.0954	1.2570	2.8297	4155
Current Grade	6.0508	2.9772	1.1376	2.7775	4147
Behind in Grades Completed	0.3045	0.4602	0.3986	0.2303	4155
Both Parents Present	0.4638	0.4987	0.4504	0.2142	4155
Mother Only	0.3193	0.4662	0.4077	0.2270	4155
Father Dead	0.0813	0.2732	0.2372	0.1328	4122
Father Absent	0.2476	0.4317	0.3724	0.2189	4086
Only Father	0.0347	0.1831	0.1441	0.1142	4155
Mother Dead	0.0225	0.1483	0.1224	0.0802	3924
Mother Absent	0.0258	0.1585	0.1204	0.1040	4149
No Parents Present	0.1798	0.3840	0.3100	0.2262	4155
Both Parents Dead	0.0052	0.0719	0.0577	0.0438	4148
Both Parents Absent	0.1378	0.3447	0.2760	0.2054	4142
Mother Dead, Father Absent	0.0121	0.1092	0.0902	0.0616	4139
Father Dead, Mother Absent	0.0174	0.1307	0.0996	0.0853	4139

Source: Own calculation using data about young adults from Waves 1-4 of CAPS

Table A116: Individual Fixed Effects by Race, Specifications 1 and 3

Advancement	Specification 1		Specification 3	
	Black	Coloured	Black	Coloured
No Parents Present	-0.00553	-0.00815		
	(0.0132)	(0.0176)		
Both Deceased			-0.0428	-0.0928
			(0.0465)	(0.110)
Both Absent			-0.00545	0.00228
			(0.0143)	(0.0187)
Mother Absent, Father Deceased			0.00922	-0.0621
			(0.0307)	(0.0592)
Father Absent, Mother Deceased			-0.0244	-0.0816*
			(0.0570)	(0.0489)
N	22,710	21,029	22,048	20,680
R-squared	0.079	0.205	0.080	0.203
No. Individuals	2,150	2,005	2,099	1,985

Source: Own calculation using data from Waves 1-4 of CAPS

Notes: All regressions include a full set of indicators for age. The data are weighted to account for sample design as well as individual and household non-response. Cluster robust standard errors are used.

Table A127: Individual Fixed Effects by Race with controls for parental death, Specifications 1 and 3

Advancement	Specification 1		Specification 3	
	Black	Coloured	Black	Coloured
Foster Child	-0.00154	-0.00628		
	(0.0136)	(0.0185)		
Both Deceased			0.0833	-0.0408
			(0.0814)	(0.121)
Both Absent			-0.00571	5.32e-05
			(0.0143)	(0.0187)
Mother Absent, Father Deceased			0.00490	-0.0263
			(0.0301)	(0.0607)
Father Absent, Mother Deceased			0.0891	-0.0832
			(0.0786)	(0.0650)
Maternal Death	-0.0725**	-0.0404	-0.139**	-0.000984
	(0.0364)	(0.0315)	(0.0663)	(0.0396)
Paternal Death	0.0133	-0.0748**	0.00793	-0.0700**
	(0.0257)	(0.0304)	(0.0260)	(0.0329)
N	22,085	20,695	22,048	20,680
R-squared	0.080	0.204	0.080	0.203
No. Individuals	2,099	1,985	2,099	1,985

Source: Own calculation using data from Waves 1-4 of CAPS

Notes: All regressions include a full set of indicators for age. The data are weighted to account for sample design as well as individual and household non-response. Cluster robust standard errors are used.

Table A138: Individual fixed effects estimation, years since separation, Specifications 3 and 4

Advancement	Full		Black		Coloured	
	3	4	3	4	3	4
Both Parents Deceased						
Separated this Year	-0.0584	-0.0431	-0.0587	-0.0471	-0.284*	-0.269*
	(0.0780)	(0.0785)	(0.0976)	(0.0994)	(0.148)	(0.150)
1/2 Years After Separation	0.0387	0.0544	-0.00311	0.00900	-0.113	-0.0979
	(0.0508)	(0.0518)	(0.0580)	(0.0601)	(0.118)	(0.121)
3/More Years	-0.0164	-5.85e-05	-0.125**	-0.109*	-0.0995	-0.0854
	(0.0711)	(0.0712)	(0.0578)	(0.0586)	(0.130)	(0.131)
1/2 Years Before Separation	0.0112	0.00894	0.0225	0.0220	-0.284**	-0.297**
	(0.0563)	(0.0564)	(0.0592)	(0.0596)	(0.143)	(0.137)
Both Parents Absent						
Separated this Year	-0.00462	0.00636	-0.0221	-0.0144	0.00690	0.0201
	(0.0184)	(0.0193)	(0.0227)	(0.0250)	(0.0286)	(0.0297)
1/2 Years After Separation	0.00645	0.0181	0.0136	0.0224	-0.00333	0.00963
	(0.0155)	(0.0158)	(0.0185)	(0.0201)	(0.0239)	(0.0241)
3/More Years	0.0241	0.0360**	0.0112	0.0204	0.0388*	0.0516**
	(0.0157)	(0.0161)	(0.0178)	(0.0198)	(0.0232)	(0.0229)
1/2 Years Before Separation	-0.0172	-0.0191	0.00302	0.00175	-0.0468**	-0.0487**
	(0.0146)	(0.0146)	(0.0178)	(0.0178)	(0.0212)	(0.0212)
Mother Absent, Father Deceased						
Separated this Year	0.00215	0.0178	-0.00467	0.00794	-0.0939	-0.0752
	(0.0399)	(0.0405)	(0.0407)	(0.0427)	(0.0863)	(0.0871)
1/2 Years After Separation	0.0658*	0.0822**	0.0580	0.0716*	-0.0325	-0.0138
	(0.0377)	(0.0372)	(0.0369)	(0.0391)	(0.0692)	(0.0674)
3/More Years	0.0391	0.0541	0.0185	0.0315	-0.0230	-0.00813
	(0.0464)	(0.0470)	(0.0422)	(0.0424)	(0.0799)	(0.0812)
1/2 Years Before Separation	0.0522	0.0484	0.0327	0.0287	-0.0250	-0.0233
	(0.0320)	(0.0322)	(0.0359)	(0.0366)	(0.0606)	(0.0612)
Father Absent, Mother Deceased						
Separated this Year	-0.0135	0.000566	0.0127	0.0200	-0.0485	-0.0273
	(0.0530)	(0.0523)	(0.0534)	(0.0531)	(0.0792)	(0.0774)
1/2 Years After Separation	-0.0196	-0.00648	-0.0166	-0.00975	-0.0289	-0.0116
	(0.0526)	(0.0532)	(0.0641)	(0.0660)	(0.0843)	(0.0837)
3/More Years	-0.0632	-0.0505	-0.0655	-0.0589	-0.0702	-0.0549
	(0.0500)	(0.0508)	(0.0801)	(0.0823)	(0.0581)	(0.0592)
1/2 Years Before Separation	-0.0176	-0.0186	-0.0939	-0.0929	0.0268	0.0234
	(0.0440)	(0.0442)	(0.0604)	(0.0608)	(0.0607)	(0.0613)

Source: Own calculation using CAPS data about the young adults in Waves 1-4.

Notes: All regressions include a full set of indicators for age. The data are weighted to account for sample design as well as individual and household non-response. Robust standard errors are in parentheses, * p<0.05, ** p<0.01, *** p<0.001

Table A18 Continued: Individual fixed effects estimation, years since separation, Specifications 3 and 4

Advancement	Full		Black		Coloured	
	3	4	3	4	3	4
Mother Only						
Separated this Year		0.0204		0.0228		0.00121
		(0.0159)		(0.0204)		(0.0229)
1/2 Years After Separation		0.0292**		0.0162		0.0239
		(0.0128)		(0.0180)		(0.0170)
3/More Years		0.0240*		0.0218		0.0304*
		(0.0127)		(0.0175)		(0.0166)
1/2 Years Before Separation		0.00132		0.00195		-0.00452
		(0.0137)		(0.0180)		(0.0207)
Father Only						
Separated this Year		0.00881		-0.00968		0.0218
		(0.0266)		(0.0367)		(0.0385)
1/2 Years After Separation		0.0558**		-0.00575		0.107***
		(0.0241)		(0.0344)		(0.0327)
3/More Years		0.000753		-0.00702		-0.00489
		(0.0260)		(0.0423)		(0.0295)
1/2 Years Before Separation		0.00804		-0.0132		0.0121
		(0.0229)		(0.0256)		(0.0376)
N	45,251	45,251	23,360	23,360	21,891	21,891
R-squared	0.146	0.147	0.084	0.084	0.223	0.224
No. YAs	4,155	4,155	2,150	2,150	2,005	2,005

Source: Own calculation using CAPS data about the young adults in Waves 1-4.

Notes: All regressions include a full set of indicators for age. The data are weighted to account for sample design as well as individual and household non-response. Robust standard errors are in parentheses, * p<0.05, ** p<0.01, *** p<0.001

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