

Are orphans and fostered children less likely to be in school?

Evidence from South Africa

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Abstract

The HIV/AIDS epidemic has resulted in a dramatic increase in orphans in South Africa, and there is growing concern that traditional foster care networks will be strained to the breaking point. Both orphaned children and fostered children (e.g., children living with extended kin) are predicted to have fewer resources invested in their education. However, families self-select into fostering, and children may be sent to foster homes because of perceived benefits from fostering (such as more available resources or access to better schools). We examine the relationship between orphan status, foster status and enrollment in school using a longitudinal sample of children ages 5 through 18 in Cape Town, South Africa. We find no difference in school enrollment between nonorphans, single parent orphans, and fostered children (orphans and nonorphans alike). Only double orphans, who are both orphaned and fostered, are consistently less likely to be enrolled in school.

1. Introduction

South Africa has been hard hit by the HIV/AIDS epidemic, resulting in high rates of adult mortality and an 18 year decrease in life expectancy at birth (United Nations 2005). Blacks have been disproportionately affected by the epidemic, with higher prevalence than other racial/ethnic groups. Among 15-49 year old South Africans, 19.9% of blacks are infected, as opposed to 3.2% of coloureds and 1% or fewer of whites and Indians (Shisana et al. 2005). The HIV/AIDS crisis is an important contributor to orphanhood among black South Africans. In 2003, 14.4% of black South Africans had experienced the death of a father before age 16 and 4.4% of Black South Africans had experienced the death of a mother before age 16 (Operario et al. 2008: 177). (Note that these percentages are for all parental deaths, not just parental deaths from HIV/AIDS.) As the HIV/AIDS epidemic continues, rates of single and double orphanhood among black South Africans are expected to increase (Nyambedha, Wandibba, and Aagaard-Hansen 2003; Nyamukapa and Gregson 2005).

Children who are orphaned may be fostered, or sent to live with extended family members Nonorphans are fostered as well, and fostering may occur because it brings perceived benefits, such as access to better schools. However, increasing orphan rates throughout Africa may overload the traditional fostering system (Heuveline 2004; Mamas et al. 2004; Nyamukapa and Gregson 2005). Black youth who are orphaned and/or fostered may fare worse in terms of health, educational, occupational, and other outcomes than others, exacerbating racial inequalities in South Africa. In this study, we examine the relationship between orphanhood and fostering and school enrollment using data from the Cape Area Panel Study

(CAPS), a longitudinal study of youth and their households from Cape Town, an urban area of approximately two and a half million people located in the Western Cape province of the Republic of South Africa.

2. Orphans and Education

The lives of orphans are profoundly affected by the immediate psychological, social and economic effects of losing a parent. In addition, their education, and thus their ability to eventually earn a living and to be independent, is often derailed. A number of studies in sub-Saharan Africa, including South Africa, have found negative associations between orphanhood and schooling. For example, studies using Demographic and Health Surveys for sub-Saharan African countries have found orphans are less likely to be enrolled in school or at the proper educational level for their age than nonorphans (Bicego et al. 2003; Case et al. 2004). A nationally representative survey of young South Africans (ages 16-24), found compulsory school completion was lower among school-age youth who had experienced orphanhood than those who had not (Operario et al. 2008). These studies were cross-sectional, making it difficult to determine whether orphanhood has a causal effect on schooling. But longitudinal studies also have found that orphans are less likely to be enrolled in or participating in school and have completed fewer years of school relative to nonorphans (e.g., Case and Ardington 2006; Evans and Miguel 2007; Yamano et al. 2006). Longitudinal analyses also have shown that school participation declines in the two years prior to a parent's death (Evans and Miguel 2007) and does not "recover" in the years after a parent's death (Case and Ardington 2006; Evans and

Miguel 2007). Using data from Uganda, Bishai et al. (2003) report that children with living HIV-positive parents are more likely to be in foster homes than children whose living parents are HIV-negative, suggesting that alternative household arrangements are made before the death of parents infected with HIV.

Orphanhood may be associated with negative school outcomes for a number of reasons. The trauma children experience during a parent's illness and after a parent's death may make it difficult to concentrate on school. Orphans may have to take on adult roles, such as caregiving for an ill parent or other family members or engaging in domestic work or paid employment (Ansell and Young 2004), although some studies have found no differences in engagement in paid labor between orphans and nonorphans (Monasch and Boerma 2004). Children's own illnesses could affect their schooling (Bicego et al. 2003; Operario et al. 2008). One study in Uganda found that orphans are more likely to be HIV-positive than nonorphans, probably infected by their mothers who then died of AIDS (Kamali et al. 1996). Stunting, an effect of long-term nutritional deprivation, is more common among orphans than nonorphans in Tanzania, Kenya and Malawi (Ainsworth and Semali 2000; Lindblade et al. 2003; Panpanich et al. 1999).

Poorer economic resources among orphaned children may be another important factor for poorer educational outcomes. Paternal orphans live in poorer households than maternal orphans (Case and Ardington 2006). While orphans living in poor households are more likely to experience negative schooling outcomes, a relationship between orphanhood and negative schooling outcomes persists, even when household wealth and other household characteristics

are controlled (e.g., Bicego et al. 2003; Case et al. 2004; Evans and Miguel 2007). The loss of a parent's income and the costs associated with a parent's illness or death may leave little money for children's school expenses (Lloyd and Blanc 1996). Across Africa, orphans are more likely to live in female-headed households and in households with a less favorable dependency ratio (Monasch and Boerma 2004). In the case of AIDS orphans, children who have lost a single parent are likely to have their surviving parent also be seropositive, who may be unable to provide proper care or earn sufficient income.

In addition, orphans' schooling might be negatively affected if they live in foster households whose caregivers discriminate against orphans and invest less in their schooling. In a study of 40 sub-Saharan African countries, 90% of orphans were cared for by extended family members, with grandparents being the most common caretaker (Monasch and Boerma 2004). One study found that 28% of AIDS orphans in Kenya are cared for by what are considered to be "inappropriate" people, such as strangers or maternal kin (Nyambedha et al. 2003). Orphans often live with distant kin or non-relatives; nonorphans living in the same households with them are more likely to be enrolled in school, suggesting orphans may have fewer resources invested in their schooling by their caregivers (Case et al. 2004). While single orphans may live with their surviving parent, double orphans necessarily must be fostered, which may explain why double orphans are the least likely to be enrolled in school (Case et al. 2004; Monasch and Boerma 2004).

2.1 Variation in the Association Between Orphanhood and Schooling

The relationship between orphanhood and schooling outcomes may vary by a number of factors, including the gender of the parent who dies and whether one or both parents die,

the gender of the child who is orphaned, and the age of the orphaned child. We briefly discuss each of these factors.

Type of Orphan. Concern exists that maternal orphans fare worse than paternal orphans. Fathers may provide less support to children than mothers, even after the mother has died, and children may experience greater disruptions in their living situation (e.g., are more likely to be fostered to extended kin) after a maternal death than a paternal death (Evans and Miguel 2007; Nyamukapa and Gregson 2005). In South Africa, Case and Ardington's (2006) longitudinal study in the KwaZulu-Natal province found direct effects of mother's death but not father's death on school enrollment and money spent on children's education. Father's death had no independent effects on children's schooling once household economic status was controlled. Other longitudinal research in Africa has found poorer schooling outcomes for maternal orphans than paternal orphans (e.g., Evans and Miguel 2007).

It seems reasonable to expect that children who are double orphans will have worse outcomes than children who are single orphans. But evidence that double orphans fare worse in terms of schooling than single orphans (maternal or paternal orphans) is mixed. In Africa, some cross-sectional research has found poorer schooling outcomes for double orphans than for single orphans (e.g., Bicego et al. 2003; Case et al. 2004). Other cross-sectional research has found that maternal orphans but not paternal or double orphans have lower primary school completion rates than nonorphans in rural Zimbabwe (Nyamukapa and Gregson 2005). Case and Ardington's (2006) study found that when household socioeconomic status is controlled, double orphans fare worse than paternal orphans in terms of years of schooling completed,

school enrollment, and money spent on schooling but they do not fare differently than maternal orphans on these outcomes. Within-gender analyses have found that, among adolescent females, double orphans and virtual double female orphans (i.e., orphans who have lost one parent and are not living with the remaining parent) but not single orphans living with a parent are less likely to be enrolled in secondary school and have slower educational progression than those living with both parents. Among adolescent males, double and virtual double orphans but not single orphans living with a parent progress through school more slowly than those living with both parents (Yamano et al. 2006).

Gender of the Orphaned Child. Evidence that the effects of orphanhood on education vary for males and females also has been mixed. In South Africa, Operario et al. (2008)'s study using a representative, cross-sectional sample of young South Africans found an independent association of orphanhood with not completing compulsory school completion for females but not for males whose mother or father died before age 16. For males, father's death and mother's death before age 16 was not significantly associated with completion of compulsory education once socioeconomic status controlled. But Case and Ardington's (2006) study using longitudinal data from KwaZulu-Natal found no differences by child's gender in the effects of maternal death on a number of educational outcomes.

Age of the Orphaned Child. Whether the relationship between orphan status and schooling varies by age is unclear from previous studies. Using Demographic and Health Surveys for sub-Saharan African countries, Bicego et al. (2003) found a stronger negative relationship between orphanhood and being at the proper educational level for younger children (ages 6-

10) than older ones (ages 11-14), but Case et al.'s (2004) analysis of DHS data with household fixed effects found greater effects of orphanhood on school enrollment at older ages. Case et al. say this pattern is largely due to the older children's greater likelihood of being double orphans. Finally, Yamano et al.'s (2006) study in rural Uganda found effects of orphan status on school enrollment for 15-18 year-olds but not 7-14 year-olds, but this may be because primary school education in Uganda is free and secondary school education is not. All of these studies used cross-sectional data; longitudinal studies may be better suited for examining variation in the relationship between orphan status and schooling by age.

3. Fostered Children and Education

Fostering—children living with relatives besides their parents—is a common practice among blacks in South Africa (Anderson 2006; Cichello 2003), and throughout other sub-Saharan African countries as well (Lloyd and Blanc 1996). A significant fraction of fostered children are not orphans, but are sent from their natal households to live with extended kin for a variety of reasons. The reasons for fostering vary. Migratory labor patterns may result in parents working away from their children and spouses. In South Africa, absent parents often remit wages to their children and other family members (Posel 2001). Children may also be fostered because the recipient households live near better schools or have more resources to invest in children's schooling (Anderson 2005; Russell 2002; Zimmerman 2003). In other words, parents may foster children into households that offer greater benefits for the child. This pattern of fostering may contribute to the relatively small effects of father or mother absence

on educational attainment among blacks that have been found in South Africa (Anderson 2006; Anderson et al. 2001; Cichello 2003; Zimmerman 2003).

Children may be fostered in response to household demographic factors, or in reaction to unexpected household shocks (Akresh 2005). The death of a parent is perhaps the most extreme form of this, but other examples include an illness or death of another family member, loss of employment by a primary wage earner, forced relocation (perhaps due to natural disaster), etc. While voluntary fostering may be beneficial to the fostered child, involuntary fostering necessitated by unanticipated events may not. Castle (1995), for example, found that children who were fostered at the request of the receiving households had better nutritional outcomes than children who were fostered due to crises.

Fostered children may receive differential treatment based on the closeness of their relationship to the foster household. Anderson (2005), using representative data from South Africa, showed that children living with distant kin have completed fewer grades and are more likely to be behind in school for their age. Anderson (2006) also found that South African children who live with neither parent are less likely to be enrolled in school, have completed fewer grades, are further behind in school for their age, and have less money spent on their school fees, relative to children living with both parents. Bishai et al. (2003) report that reduced biological relatedness to the household (e.g., living with more distant kin) is associated with higher rates of child mortality in Uganda.

The effects of fostering on schooling outcomes may vary by orphan status. Case et al. (2004) found that orphans are less likely to be enrolled in school than nonorphaned foster

children with the same living arrangements. In addition, some research in Africa suggests that nonorphaned children do not necessarily benefit from fostering. Yamano et al. (2006) found nonorphaned adolescent males living away from parents are less likely to be enrolled in secondary school and progress through school more slowly than adolescent males living with both parents. The study also found nonorphaned adolescent females living away from parents progress through school more slowly than their counterparts who are living with both parents. Nyamukapa and Gregson (2005) argue that children who have been orphaned are not consulted regarding their childcare or living arrangements; decisions are made based on the wishes of the deceased and the preferences of the surviving relatives.

Neither orphanhood nor fostering are exogenous, since both may be influenced by socioeconomic and other characteristics of the household. But in a sense, fostering is “more endogenous” than orphanhood, since households can take a more active and conscious role in assigning children to foster status than orphan status. We may see greater effects of self-selection among fostered children. Which may lessen to expected negative impact of foster status in educational outcomes.

4. Education in South Africa

Education in South Africa bears the historical influence of apartheid (“separateness”), which from 1948 until 1990 was the official policy of the government of South Africa. The goal of apartheid was to enforce and increase the de facto racial segregation that already existed in the country. Legislation enforced racial segregation, so that the quality of employment,

education, housing and other opportunities varied greatly across racial groups, with whites having the greatest access to resources and blacks the least. Although apartheid has ended, South Africa continues to exhibit substantial racial disparities in schooling outcomes; there is a gap of three grades between the completed schooling of whites and blacks as well as whites and coloureds in recent cohorts (Anderson et al. 2001), and blacks have lower numeracy and literacy skills than the other racial groups (Moll 1998).

School enrollment in South Africa is fairly high relative to other African countries; unlike many of its neighbors, nearly all South Africans enroll in (and complete) primary school (Lloyd, Kaufman and Hewett 2000). Although completed levels of schooling within South Africa vary greatly by race, enrollment is high for all population groups. In 1995, for example, over 95% of blacks ages 10-15 enrolled in school, compared with over 98% of whites (Anderson et al. 2001). Enrollment and school attainment varies little by gender; in contrast to neighboring countries, girls are not disadvantaged in terms of educational attainment, and even display slightly higher enrollment and grade attainment than males (Anderson et al. 2001).

5. Data and methods

5.1. Data

Our data come from the first (2002) and third (2005) waves of the Cape Area Panel Study (CAPS), a longitudinal study of youth and their families that is representative of metropolitan Cape Town (Lam, Seekings and Sparks 2006). (The second [2003-2004] wave of CAPS reinterviewed only a subset of young adults from the original sample.) Roughly 26% of the

residents of Cape Town are black, 50% are coloured, 22% are white, and 2% are Asian or other (Lam et al. 2006). CAPS is a joint project of the University of Cape Town and several universities in the United States that is designed to follow the lives of a large and representative sample of young people in Cape Town as they undergo transitions from adolescence to adulthood. CAPS contains two main sources of data: a household questionnaire about the schooling, employment, and fertility of all household members, and a youth questionnaire about the schooling, employment, sexual behavior, and fertility of household members who were between the ages of 14 and 22 in 2002. All of the authors of this paper were involved in the design and implementation of the study.

CAPS used a two-stage probability sample of households. The first-stage sample of Census Enumeration Areas (EAs) was drawn using the 1996 Census as a sampling frame. Because EAs in South Africa are generally homogeneous with respect to race, black and white EAs were oversampled with the goal of obtaining roughly equal numbers of black, coloured, and white youth. The second stage randomly sampled households within each selected EA. Upon recruitment into the survey, the household questionnaire was administered to an adult who was knowledgeable about the household, while full-length youth questionnaires were given separately to up to three young people in the household.

The first (2002) wave of CAPS includes data from 5,256 households (approximately 42% black, 44% coloured, and 14% white) and 4,752 youth (approximately 45% black, 40% coloured, and 16% white). The response rates for households with youth were higher for blacks and coloureds (approximately 89% and 82%, respectively) than for whites (approximately 48%). The

response rates for the youth questionnaire, conditional on household participation, were high for all groups (ranging from 93% for blacks to 86% for whites). The third (2005) wave of CAPS contains data from 3,536 youth and 2,412 households. The overall retention rate for youth in the third wave, relative to the first wave, was 75%. Retention rates for youth varied by racial group, with higher rates among blacks and coloureds (approximately 70% and 85%, respectively) than among whites (almost 60%). In 2005, household questionnaires were administered only to households containing youth who had completed the youth questionnaire administered that year. Virtually all of these households (92% for blacks, 95% for coloureds, and 94% for whites) also completed the household questionnaire.

5.2. Measures

We utilize two samples, both drawn from the CAPS household dataset. Both are restricted to blacks, because orphans and fostered children are much more common in that group than among either coloureds or whites. (Among children ages zero through 18, 20.2% of blacks are fostered and 18.4% are orphans, as opposed to 10.7% fostered and 8.8% orphaned among coloureds and 2.4% fostered and 2.8% orphaned among whites [authors' calculations from CAPS data].) Cases whose paternal and maternal orphan status or foster status were unknown were dropped, as were cases missing data for others variables.

1) The *cross-sectional sample* includes 2,033 children ages 5-18 in wave 1.

2) The *panel sample* includes 1,321 children ages 5-18 (in wave 1) who were included in both the wave 1 and wave 3 household surveys. Each child has two data points, for a total analytical sample size of 2,642 observations.

The dependent variable is *enrollment in school*. This was asked for all household residents age five and older, and is a yes/no variable measuring whether each individual is “currently in school or studying at University or Technikon”. (In South Africa, “school” generally refers to primary or secondary school only.)

Our main independent variables measure whether the child is an *orphan* or is currently *fostered*. Two separate questions in the household survey asked, for every household resident, whether his or her mother or father (respectively) lives in the household. If the parent was a household resident, his or her household roster line number was indicated. Other responses included alive but living elsewhere, deceased, and don’t know. We used these variables to create dummy variables indicating whether the child is a *maternal single orphan* (mother deceased, father alive), *paternal single orphan* (father deceased, mother alive), or *double orphan* (both parents deceased). We also created a variable indicating whether the child is *fostered*. If at least one parent lives in the household with the child, he or she is considered non-fostered. If the child lives in a household with neither parent, he or she is considered fostered. Subjects (all of whom are 18 or younger) who are indicated to be the head of the household, the spouse of the head, or who are married are excluded from the sample. For the present analysis we do not take into account the child’s relationship to other household members (e.g., whether they are living with aunts, uncles, grandparents, etc.), though previous research using a national sample of households suggests very few fostered children live with non-relatives in South Africa (Anderson 2005). For non-fostered children, we do not distinguish between children living with two biological parents and a single biological parent.

We combined the orphan and foster variables to create dummy variables indicated orphan-foster status. *Nonorphan, not fostered* refers to a child who is neither an orphan nor a foster child; this is the reference group for all analyses using the orphan-foster status dummies. *Nonorphan, fostered* refers to a child who is not an orphan but who is fostered (one or more parents alive but he or she does not live with either of them). *Single orphan, not fostered* indicates a child who has lost one parent but who lives with the remaining parent. *Single orphan, fostered* indicates a child who has lost one parent but who does not live with the surviving parent. The single orphan categories pool maternal and paternal orphans. A final group of dummy variables distinguished orphan-foster status by the gender of the deceased parent: *paternal orphan, not fostered*, *paternal orphan, fostered*, *maternal orphan, not fostered* and *maternal orphan, fostered*. A final dummy variable included in most of these variable sets is *double orphans*, both of whose parents have died, and who are necessarily fostered since they have no living parents with whom they could coreside.

A set of control variables are included in each multivariate analysis. The child's age (in the respective wave) and age squared are included, as is a dummy variable indicating whether the child is male. Several variables capture socioeconomic status. As a control for community level background variables, we include a census sub-place poverty indicator, which measures the percent of households in each census sub-place that are below the poverty line (calculated using the 2001 South Africa Census) (Lam et al. 2006). Other variables measure SES within each household, including the number of people living in the household and the highest education in the household. A final measure of SES is the household income bracket, a 30-level ordinal variable measuring monthly household income, with missing values imputed (Lam et al. 2006).

5.3. Analysis

All analyses are done with STATA/SE 10.1 for Windows. For the cross-sectional sample, the “svy: logistic” command is used to model school enrollment, which adjusts standard errors to account for the complex survey design of CAPS. Weights were used to account for oversampling of blacks and for the non-response of both households and youth, making the results representative of metropolitan Cape Town. For the panel sample, the xtlogit command is used to provide random effects logit models of school enrollment. Results from multivariate regression are expressed as odds ratios.

6. Results

6.1 Enrollment in school

Table 1 presents weighted averages for each of the two samples, calculated using *svy: mean* for the cross-sectional sample and *xtsum* for the panel sample. About 90% of the children in the cross-sectional sample are enrolled in school, versus 84% in the panel sample. On average, subjects are 13.4 in the cross-sectional sample and 15.0 in the panel sample. A slight majority of the subjects are girls. Nearly half of the households in each census sub-place in the sample are in poverty. Each household contains about 6.6 members, typically having a maximum average educational level of about 10.8 years. The average household income bracket corresponds to about 1,500 rands per month. A large fraction of children – 23% of the cross-sectional sample and 19% of the panel sample – are fostered. For both samples, about three quarters of children in the sample are not orphans. Of those who are orphaned, about 4% are maternal orphans only, about 16% are paternal orphans only, and 3% are double orphans.

Looking at the intersection between orphan and foster status, about 65% of children are neither fostered nor orphaned. (Of these, 53.5% live with both parents, 39.9% live with mother only, and 6.6% live with father only; not shown in table.) Nearly 14% of children in the cross-sectional sample and 10% of those in the panel sample are fostered nonorphans. Across the two samples, about 14% are non-fostered single orphans, and 5% are fostered single orphans. As noted above, the remaining category, double orphans – who are all fostered – comprise 3% of the sample.

If we distinguish orphans in the two samples by the gender of the deceased parents, we see that about 13% of paternal orphans live with their mothers while about 3% are fostered. In contrast, about 1.4% of maternal orphans live with their fathers while 2-3% of maternal orphans are fostered. Thus, maternal orphans are more likely to be fostered (about 73% of maternal orphans) than paternal orphans (about 23% of whom are fostered).

[Table 1 about here]

Not surprisingly, orphan status varies by age, as shown in Figure 1 using wave 1 data (from birth through 18). Maternal single orphans and double orphans both increase from birth, peaking at about 5%. Paternal orphans increase with age at a greater rate, however, peaking at 21.5% by age 18. Figure 2 shows that the percentage of children in Wave 1 who are fostered increases with age as well. At every age, nonorphan fostered children are more common than orphaned fostered children, with both together comprising roughly 30% of the sample by the late teens.

[Figures 1, 2 about here]

Both orphans and nonorphaned children may be fostered, and it appears that both orphan and foster status influences school enrollment in Cape Town. Figure 3 depicts the relationship between enrollment and orphan-foster status in the Wave 1 data, plotted for both ages 5 through 11 and 12 through 18. For ages 5 through 12 there is no relationship between school enrollment and orphan-foster status ($\chi^2[4] = 1.4747, p = 0.8439$). For ages 12 and older, however, there is significant variation in enrollment across orphan-foster groups ($\chi^2[4] = 19.9584, p = 0.0022$). While 92% of non-fostered nonorphans are enrolled, as are 89% of non-fostered single orphans, fewer than 85% of children in all fostered groups (fostered nonorphans, fostered single orphans, and double orphans) are enrolled in school.

[Figure 3 about here]

Tables 2 through 4 present several different models of school enrollment, with orphan and foster status specified differently in each one. Each table includes a cross-sectional logistic regression using Wave 1 data, and a random effects logistic model using the panel data from Wave 1 and 3. In Table 2, orphan status is separate from foster status. In the cross-sectional data, neither maternal single, paternal single, nor double orphans differ significantly from nonorphans in their probability of enrollment. Children who are fostered, however, are only 61% as likely as non-fostered children to enroll in school. In the panel data, however, there is no significant effect of fostering on enrollment, and none of the orphan groups differ significantly from nonorphans, although double orphans are marginally less likely to attend school (OR = 0.403, $p = 0.053$).

[Table 2 about here]

Orphan and fostered status are presented as combined variables in Table 3. The baseline for both models is children who are not orphans and are not fostered. Relative to them, the cross-sectional sample finds that fostered nonorphans have 57% the odds of being in school. Furthermore, there is a marginally significantly reduced probability of enrollment for double orphans (OR = 0.486, $p = 0.085$). For the panel sample, only double orphans are significantly less likely than nonorphaned non-fostered children to be in school.

[Table 3 about here]

Table 4 presents the same model as Table 3, with the gender of the deceased parent indicated for orphans. For the cross-sectional sample, none of the orphaned groups differ significantly from nonorphan non-fostered children, although double orphans are marginally less likely to enroll in school (OR 0.486, $p = 0.086$). In the panel sample, only double orphans are less likely to be in school than non-fostered nonorphans.

[Table 4 about here]

6.2. Enrollment by gender

Boys and girls are equally likely to be orphans, with 22.3% of girls and 23.8% of boys having lost at least one parent ($F[1,2031] = 0.62$, $p = 0.43$). There is also no gender difference in the probability of being fostered, with 23.6% of girls and 21.8% of boys living in households without their parents ($F[1,2031] = 0.94$, $p = 0.33$). Yet the relationship between orphan and foster status and school enrollment may differ by gender (Figure 4). Three of the five orphan-foster categories show no significant gender difference in enrollment status, but two do: among

nonorphaned foster children, girls are more likely to be enrolled than boys, while among double orphans, boys are more likely to be enrolled than girls.

[Figure 4 about here]

Table 5 examines the relationship between orphan-foster status and enrollment separately for males and females. With the cross-sectional sample (Panel A), nonorphan foster males are only 35% as likely to be in school as nonorphan non-fostered males; no other groups differ significantly from the baseline for males. For girls, only double orphans are marginally less likely to be in school than nonorphan non-fostered girls ($p = 0.093$). In the panel analysis (Panel B), however, double orphan status attains significance for girls, who have only 16.9% the odds of being in school as nonorphan non-fostered girls. The other orphan-foster categories do not differ significantly from the baseline for either gender.

7. Discussion and conclusion

The analyses presented here suggest that both orphan and foster status influence school enrollment among blacks in Cape Town, South Africa, though perhaps not the expected manner. For the cross-sectional analyses, nonorphaned children who are fostered are less likely to be in school than non-fostered nonorphans, suggesting that fostering may have deleterious effect on enrollment. This effect is not found in the longitudinal sample, however. Among orphans, we found no negative effects among single orphans, either by gender of the deceased parent or foster status. This is consistent with the surviving parent using fostering as a strategy to increase enrollment if the options in a foster household are better than in the parent's household; otherwise, the child remains with the surviving parent. Only among double orphans,

who have no choice but to be fostered, do we see consistent and negative effects on school enrollment, particularly for girls.

In contrast to other studies (e.g., Case and Ardington 2006, Evans and Miguel 2007), we find no significant effect of the gender of the deceased parent on school enrollment. Neither maternal nor paternal orphans fare worse than nonorphans (Table 2), and this remains true when interacting gender of deceased parent by foster status (Table 4). However, there are differences in the probability of a child being fostered based on the gender of the deceased parent, with maternal orphans more likely to be fostered than paternal orphans. We have not explored the determinants of being fostered in this paper, but this is an important area for further examination.

There are a number of other limitations of the present study that should be acknowledged. First, we have examined only one outcome, school enrollment. Future analyses will examine the highest grade completed, as well as the number of grades completed between waves 1 and 3. Unlike other studies (e.g., Case and Ardington 2006, Evans and Miguel 2007) that followed a cohort of nonorphaned children to examine longitudinal effects in the transition to orphanhood, our study examines longitudinal changes in the probability of enrollment subsequent to being orphaned and/or fostered. In future analyses we will reexamine our results using this other approach as well. We will also make use of fixed effects models to control for unobserved household characteristics.

Our sample uses a household survey that was designed to target children and adolescents ages 14 through 22 in 2002. Thus, our data do not include children living in

institutions, such as orphanages or residential schools. Children who are fostered with extended family may have very different outcomes from children living in institutional environments. We also do not include homeless youth in our sample. If orphans—particularly double orphans—are overrepresented among homeless children, then our results may understate the negative effects of orphanhood on school enrollment.

The current analysis does not distinguish household composition beyond the presence or absence of any parents. Many studies throughout the world have found that children in single parent households fare worse than children in two parent households, although in previous work in South Africa we have not found strong evidence for this (Anderson 2006). We also do not distinguish between fostered households comprised of close kin such as older siblings or aunts and uncles, versus more distant kin such as second cousins. Previous work in South Africa has found that closer genetic relatedness of the focal child to the household is associated with greater grade attainment and being less further behind in school (Anderson 2005), and we will examine the nuances of household composition in the future.

The relative lack of negative enrollment consequences of fostering suggest that the current strategy of fostering children in South Africa is successful. Parents may choose to foster children or not based in part on the anticipated consequences to the children's schooling, so that children are fostered only if it is thought they will receive benefits from doing so. The exception to this is the case of double orphans, who have no choice about being fostered as they have no parents to potentially live with. Unfortunately, due to the sexually transmitted nature of HIV/AIDS (in which one parent frequently infects the other), the prevalence of double

orphans is expected to increase in South Africa. Particular interventions should be designed to help target and benefit double orphans, who may otherwise face increased likelihood of dropping out of school altogether. Otherwise we find no general negative effects of being orphaned, at least in Cape Town.

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Table 1. Weighted averages

	Cross-sectional sample		Panel sample	
	Mean	Std. error	Mean	Std. dev.
In school	0.903	0.008	0.836	0.371
Age	13.398	0.089	14.974	3.851
Male	0.471	0.013	0.488	0.500
Census sub-place poverty indicator	0.443	0.011	0.445	0.119
Number in household	6.510	0.144	6.716	2.997
Highest education in household	10.874	0.085	10.832	1.941
Household income bracket	11.838	0.214	12.631	4.232
Fostered	0.230	0.014	0.186	0.389
Nonorphan	0.772	0.013	0.754	0.431
Maternal single orphan	0.037	0.006	0.044	0.206
Paternal single orphan	0.157	0.012	0.173	0.378
Double orphan	0.033	0.005	0.029	0.168
Nonorphan, not fostered	0.636	0.016	0.656	0.475
Nonorphan, fostered	0.136	0.010	0.098	0.297
Single orphan, not fostered	0.134	0.012	0.150	0.357
Single orphan, fostered	0.060	0.006	0.041	0.198
Paternal orphan, not fostered	0.121	0.012	0.143	0.350
Paternal orphan, fostered	0.036	0.005	0.030	0.169
Maternal orphan, not fostered	0.013	0.004	0.015	0.121
Maternal orphan, fostered	0.024	0.004	0.030	0.169
N		2033		2642
				(1321 individuals)

Table 2. Enrollment in school, gender of deceased parent and fostered status

	Cross-sectional sample			Panel sample		
	OR	Std. error	p	OR	Std. error	p
Age	6.313	1.077	0.000	7.620	0.173	0.000
Age squared	0.927	0.006	0.000	0.920	0.007	0.000
Male	0.726	0.121	0.057	0.868	0.173	0.412
Census sub-place poverty indicator	0.195	0.176	0.073	0.355	0.778	0.183
Number in household	0.978	0.031	0.479	0.942	0.030	0.043
Highest education in household	1.076	0.061	0.197	1.116	0.049	0.024
Household income bracket	1.015	0.027	0.576	1.011	0.021	0.593
Nonorphan, not fostered (baseline)						
Maternal single orphan	0.768	0.327	0.537	1.445	0.419	0.379
Paternal single orphan	1.066	0.253	0.787	1.158	0.227	0.518
Double orphan	0.817	0.363	0.651	0.403	0.469	0.053
Fostered	0.606	0.126	0.018	0.789	0.234	0.311
N	2033			2642		
F	14.62					
Wald chi ²				188.87		
p	0.000			0.000		

Table 3. Enrollment in school, number of deceased parents by fostered status

	Cross-sectional sample			Panel sample		
	OR	Std. error	p	OR	Std. error	p
Age	6.308	1.083	0.000	7.515	0.171	0.000
Age squared	0.927	0.007	0.000	0.921	0.007	0.000
Male	0.727	0.121	0.058	0.875	0.172	0.436
Census sub-place poverty indicator	0.197	0.178	0.074	0.343	0.775	0.168
Number in household	0.977	0.031	0.476	0.943	0.029	0.046
Highest education in household	1.081	0.059	0.161	1.114	0.048	0.026
Household income bracket	1.013	0.026	0.619	1.012	0.021	0.563
Nonorphan, not fostered (baseline)						
Nonorphan, fostered	0.566	0.133	0.016	0.935	0.285	0.815
Single orphan, not fostered	0.936	0.220	0.780	1.253	0.245	0.357
Single orphan, fostered	0.628	0.216	0.177	0.711	0.386	0.376
Double orphan (fostered)	0.486	0.202	0.085	0.320	0.425	0.007
N	2033			2642		
F	12.79					
Wald chi ²				190.46		
p	0.000			0.000		

Table 4. Enrollment in school, gender of deceased parents by fostered status

	Cross-sectional sample			Panel sample		
	OR	Std. error	p	OR	Std. error	p
Age	6.311	1.079	0.000	7.588	0.173	0.000
Age squared	0.927	0.007	0.000	0.921	0.007	0.000
Male	0.725	0.121	0.057	0.872	0.172	0.428
Census sub-place poverty indicator	0.197	0.178	0.074	0.344	0.778	0.170
Number in household	0.978	0.031	0.492	0.943	0.030	0.045
Highest education in household	1.076	0.061	0.194	1.116	0.049	0.024
Household income bracket	1.015	0.026	0.580	1.012	0.021	0.560
Nonorphan, not fostered (baseline)						
Nonorphan, fostered	0.567	0.133	0.017	0.953	0.287	0.866
Paternal orphan, not fostered	0.996	0.264	0.988	1.294	0.253	0.309
Paternal orphan, fostered	0.715	0.284	0.400	0.694	0.439	0.405
Maternal orphan, not fostered	0.615	0.290	0.303	1.962	0.675	0.318
Maternal orphan, fostered	0.511	0.305	0.263	1.007	0.483	0.988
Double orphan (fostered)	0.486	0.203	0.086	0.326	0.426	0.009
N	2033			2642		
F	13.90					
Wald chi ²				189.4		
p	0.000			0.000		

Table 5. Enrollment in school, by child's gender

A. Cross-sectional sample	Male			Female		
	OR	Std. error	p	OR	Std. error	p
Age	8.638	2.014	0.000	4.696	1.213	0.000
Age squared	0.915	0.009	0.000	0.937	0.010	0.000
Census sub-place poverty indicator	0.100	0.150	0.126	0.305	0.300	0.230
Number in household	0.975	0.051	0.628	0.981	0.041	0.652
Highest education in household	1.071	0.093	0.431	1.099	0.084	0.220
Household income bracket	0.960	0.039	0.319	1.051	0.037	0.163
Nonorphan, not fostered (baseline)						
Nonorphan, fostered	0.353	0.127	0.005	0.917	0.273	0.771
Single orphan, not fostered	1.174	0.479	0.694	0.782	0.245	0.434
Single orphan, fostered	0.903	0.423	0.827	0.533	0.235	0.156
Double orphan (fostered)	0.633	0.335	0.390	0.361	0.218	0.093
N	958			1075		
F	9.44			6.51		
p	0.000			0.000		

Table 5. (Continued)

B. Panel sample	Male		Female	
	<i>OR</i>	<i>Std. error</i>	<i>OR</i>	<i>Std. error</i>
Age	8.495	0.249	6.303	0.239
Age squared	0.917	0.010	0.926	0.009
Census sub-place poverty indicator	0.313	1.051	0.387	1.137
Number in household	0.912	0.040	0.983	0.044
Highest education in household	1.126	0.070	1.097	0.067
Household income bracket	1.007	0.030	1.014	0.029
Nonorphan, not fostered (baseline)				
Nonorphan, fostered	0.650	0.423	1.237	0.387
Single orphan, not fostered	1.259	0.341	1.264	0.349
Single orphan, fostered	0.726	0.534	0.799	0.559
Double orphan (fostered)	0.461	0.552	0.169	0.683
N	1290		1352	
Wald chi ²	90.94		98.35	
p	0.000		0.000	

Figure 1. Orphan status, by age (Wave 1)

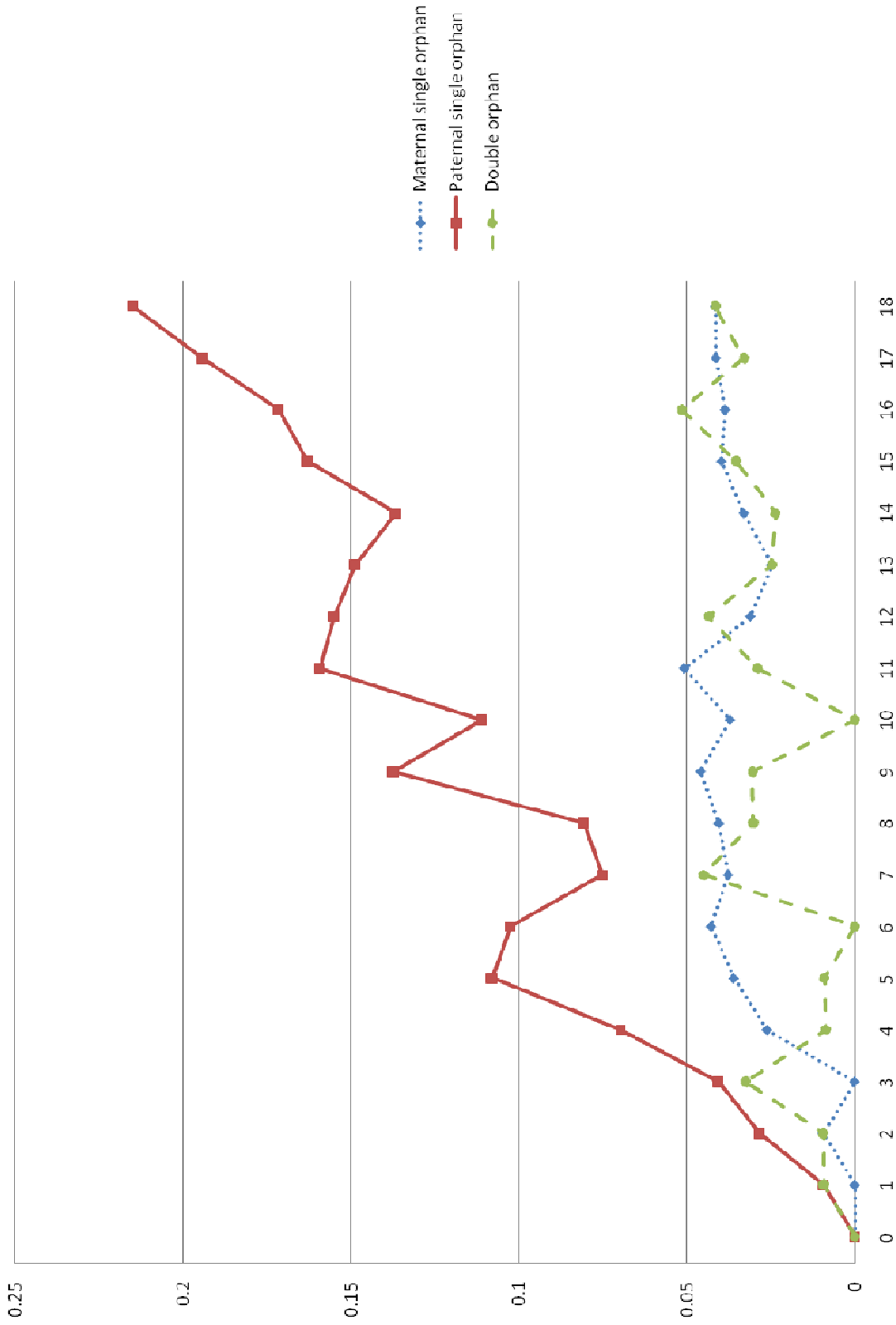


Figure 2. Fostered status, by age and orphan status (Wave 1)

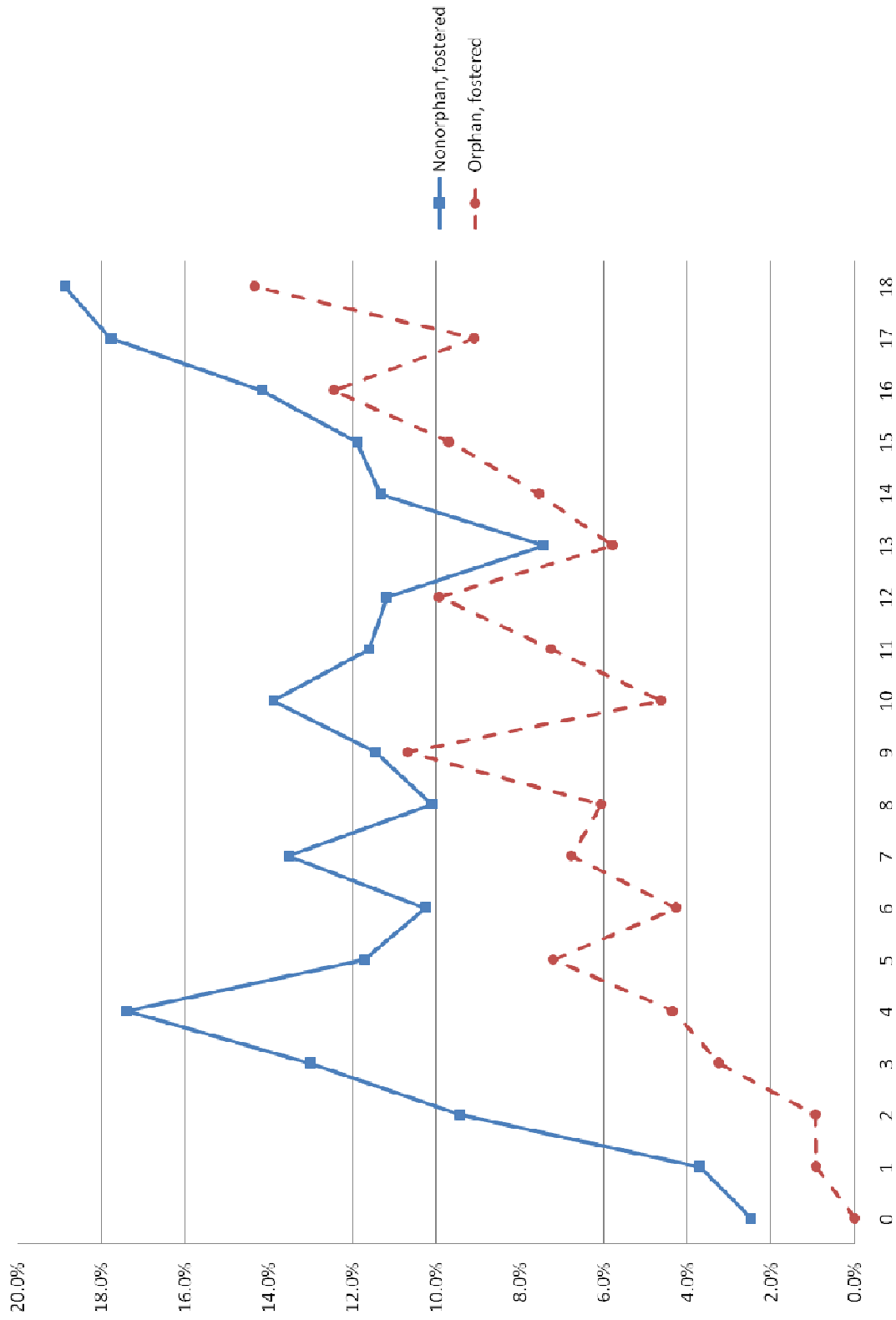


Figure 3. Enrollment in school, by orphan and foster status (Wave 1)

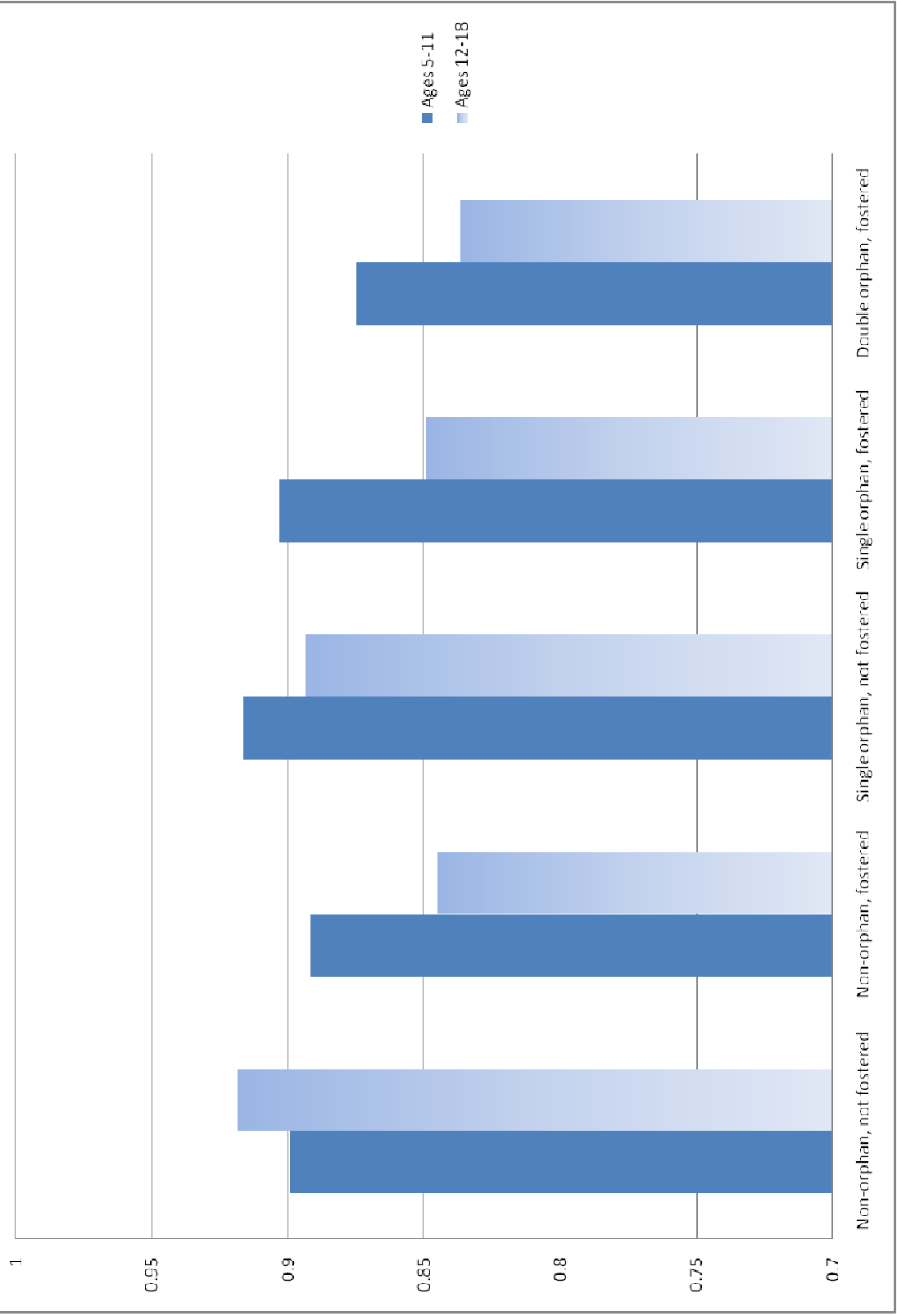


Figure 4. Enrollment by orphan-foster status and gender (Wave 1)

