

## Education for children in sub-Saharan Africa: Predictors impacting school attendance



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### ABSTRACT

Under the U.N. Convention on the Rights of the Child, every child is entitled to free primary school education and access to secondary school or occupational training, and education has become one of the basic indicators of child wellbeing. Large scale studies published in the 1990s and early 2000s generally showed that significant educational disparities existed based on orphan status and a child's relationship to the head of the household. Poverty, gender and rural residence were also shown to contribute to the disparities. Since the data relied on by these studies were collected, the global community has conducted major campaigns to close these gaps, through the Education for All (EFA) and Millennium Development Goals (MDGs). This study (N = 124,592) examined these factors using eight country-years from five sub-Saharan African countries, since half of the children out of school live in that region. Findings show that considerable progress has been made to close the disparity based on orphan status, and the gender gap is also closing. However, poverty remains a challenge across all variables, and there are pockets of gender disparity for both boys and girls, particularly in areas where deeply rooted cultural and child raising patterns are retained. Most alarmingly, children who live with non-relatives have the lowest attendance rate. Continued efforts to target these groups of children and their households are urged, as well as research on the underserved children.

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Education for children has now been firmly established as a basic human right. The Convention on the Rights of the Child ("the CRC", [United Nations General Assembly, 1989](#)), the most universally accepted human rights instrument in history with 196 nations ratifying it ([UNICEF, 2015a](#)), requires member states to provide every child an equal opportunity to receive compulsory and free primary education, and to have access to secondary schools or vocational training. States are also mandated to take measures to encourage regular school attendance rather than simply tracking enrollment (CRC, Art. 28).

Accordingly, several global efforts have focused on promoting children's educational rights. Among those are the Education for All ("EFA") initiative, launched in 1990 by the United Nations Education, Science and Culture Organization (UNESCO), United Nations Development Programme (UNDP), United Nations Children's Fund (UNICEF) and the World Bank; and the Millennium Development Goals ("MDGs", [UNICEF, 2015a](#)) adopted by the member nations of the United Nations in 2000. Under MDG 2, the global community would ensure that by 2015, all children would be able to complete a full course of primary education, while under Goal 3, gender disparity in primary and secondary education would be eliminated by 2005, and in all levels of

education by 2015. Together, the EFAs and MDGs formed a strong and clear global commitment to improving the education of all children, most particularly those who are poor and in difficult circumstances in developing regions (EFA, Goal #3).

What is known about the achievement of these goals for the children in sub-Saharan Africa? According to UN organizations, the MDGs were successful in decreasing the number of primary school age out-of-school children. However, 57 million children between age six and eleven still remain out of school, and more than half of these live in sub-Saharan Africa ([UNESCO Institute for Statistics, 2015](#)). Hence, reaching all children continues to be one of 17 goals under the Sustainable Development Goals ([United Nations, 2016](#)), launched to continue the global development agenda beyond the MDGs.

Who are the children out of school? Most of the large scale studies ([Ainsworth & Filmer, 2006](#); [Ardington & Leibbrandt, 2010](#); [Case, Paxson, & Ableidinger, 2004](#); [Monasch & Boerma, 2004](#)) used data from the 1990s to early 2000s, and an independent corroboration of the EFA or MDG reports have not been conducted since that time, although some smaller studies ([Beegle, De Weerd, & Dercon, 2006](#); [Roby, Lambert, & Lambert, 2009](#)) have explored this question in the region. To fill this knowledge gap, this paper presents the findings on children's school attendance in 5 sub-Saharan African nations, comprising eight country-years using Demographic and Health Survey (DHS)

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data collected on 124,592 children aged 6–14 between 2004 and 2012. We sought to learn the variables that predict children's school attendance, in relation to their household and demographic circumstances. These data were collected over eight years during the MDG period (2000–2015), and our findings constitute an independent source of the progress being made during the initial MDG and EFA periods.

## 1. Review of the literature

As a threshold matter, we note that the operationalizing of schooling outcomes is inconsistent within the literature – which may lead to incompatible findings between studies. In some instances, schooling is measured by the amount of education a child has attained (e.g., [Beegle et al., 2006](#)), while at other times enrollment rates (e.g., [Ainsworth & Filmer, 2006](#); [Gundersen, Kelly, & Jemison, 2004](#); [Kobiane, Calves, & Marcoux, 2005](#); [Parker & Short, 2009](#); [Yamano, Shimamura, & Sserunkuuma, 2006](#)), attendance (e.g., [Ainsworth, Beegle, & Koda, 2005](#); [Bennell, 2005](#); [Sharma, 2006](#)), or a combination (e.g., [Ardington & Leibbrandt, 2010](#)) is used. Interpretation across studies is complicated even further when terms such as enrollment and attendance are used interchangeably within one study (e.g., [Case et al., 2004](#)). The differentiation is important as in 2012, 76% of primary school aged children in sub-Saharan Africa were enrolled but only 67% were attending ([UNICEF, 2015b](#)), and [Roby et al. \(2009\)](#) found similar results in Mozambique. Our study examines school attendance rather than enrollment or attainment, but for purposes of our literature review we will refer to the terms used in the original publications.

Research on schooling surged in the 1990s after the launching of the EFAs and through the early 2000s after the adoption of the MDGs ([Lloyd & Blanc, 1996](#); [Bicego, Rutstein, & Jonson, 2003](#); [Case et al., 2004](#)), although they used older data. Due to the rapid escalation of the AIDS pandemic during the same period, the education literature out of sub-Saharan Africa also focused much attention on children orphaned or affected by HIV/AIDS, their care arrangements, household wealth, and the children's relationship to the head of household (e.g., [Ainsworth et al., 2005](#); [Case et al., 2004](#); [Monasch & Boerma, 2004](#)). Later, noting that households caring for kin children were often raising their biological children at the same time, the possibility of disparate treatment between biological and kin children of the caregiver's, including in school attendance, has also been explored ([Roby, Shaw, & High-George, 2014](#)).

An 'orphan' is generally defined as a child who has lost one or both of their parents to death differentiated as "single" or "double" orphans, and further differentiated as "maternal" and "paternal" orphan categories depending on whether their mother or father is deceased, respectively. DHS data forms incorporate these same concepts of orphan status. A number of studies have explored orphan status in relation to school attendance, resulting in mixed findings. While [Case et al. \(2004\)](#) and [Monasch and Boerma \(2004\)](#) found that orphans were less likely to be enrolled in school than non-orphans, but other studies ([Ainsworth & Filmer, 2006](#); [Yamano et al., 2006](#)) were unable to find a significant relationship. This may be due in part to methodological differences related to measurement of orphan status or school outcomes or due to sample characteristics. For example, although some orphans may have higher emotional and psychological incentives to return to school than non-orphans ([Bennell, 2005](#); [Mbugua, 2004](#)), this could be masked in statistical analyses that do not have measures of time since attending school is likely to be difficult after a recent trauma of losing parents ([Ainsworth et al., 2005](#); [Sharma, 2006](#)). However, panel studies used to address these concerns found that school attendance of older children, ages 11–14, were not affected by orphan status or recent adult deaths in the household ([Ainsworth et al., 2005](#)).

The child's relationship to the head of the household, regardless of orphan status, has also been studied as a variable related to school attendance, since kinship care has long been a traditional form of child fostering in Africa ([Beegle, Filmer, Stokes, & Tiererova, 2010](#); [Foster, Levine, & Williamson, 2005](#); [Roby et al., 2014](#)). In cases of parental

death cultural norms typically mandate that the orphaned children become absorbed into the kin system ([Roby, 2011](#)); across 13 African countries, extended family provided care for 90% of double orphans ([Monasch & Boerma, 2004](#)). [Evans and Miguel \(2007\)](#) argue that Africa's system of kinship care could mitigate against the adverse effects of orphanhood on schooling. In contrast, [Sharma \(2006\)](#) hypothesized that relatives would not be as willing to invest in a child's education because they would not directly benefit from the future financial returns.

Emerging research suggests that the wellbeing of the fostered kin child, including school attendance, may depend on the degree of relatedness to the head of household. Hamilton's Rule posits that as the relationship between the caregiver and child becomes more distant, investments in that child will decrease, and this has been borne out by some localized research ([Beegle et al., 2006](#); [Bishai et al., 2003](#); [Case et al., 2004](#); [Crawley, 2001](#); [Roby et al., 2014](#); [Sharma, 2006](#)). A study in Lesotho found that children living with a grandmother were as likely to be enrolled in school as children living with a mother ([Parker & Short, 2009](#)). In rural Zimbabwe willingness to foster was highest for grandchildren, but steadily declined as relational distance increased ([Howard et al., 2006](#)).

A study in Kenya demonstrated that orphans were treated as second-class citizens, through discrimination, abuse, or enslavement when taken in by extended family ([Crawley, 2001](#)). In Uganda, biological relatedness was a key predictor of child mortality, suggesting that the more distant the relationship the less likely the child was to survive ([Bishai et al., 2003](#)) and [Roby et al. \(2014\)](#) found that kin children were attending school at a lower rate than the biological children in their kinship placements and reported doing more household work. Here again, poverty may combine with relatedness to compound the difficulty. In spite of positive kin and child attitudes about education, extreme poverty often hampers the children's ability to access it ([Clacherty, 2008](#)). Thus, even though some kin are typically willing to care for orphaned children, their poverty may impede their ability to do so adequately.

What about children who live within a household with unrelated individuals? There are only a few studies about such children; and little is known about them. Many of these children are in informal alternative care; that is, there is no government involvement in arranging such care of children or any oversight or monitoring ([U.N. Guidelines on Alternative Care, 2010](#)). Their numbers and situation are largely unknown, although it is suspected that they range in the tens of millions globally ([Roby, 2011](#)). Some of these children may be children of family friends, boarders attending school, or household servants.

Household poverty is one of the principal barriers to children's school attendance, particularly in Africa where families are required to pay for uniforms, books, and supplies even in countries with universal primary education policies ([Case et al., 2004](#); [Roby et al., 2009](#); [U.N., 2013b](#)). Other authors have contended that household wealth is ultimately responsible for lower schooling outcomes ([Ainsworth & Filmer, 2006](#); [Bennell, 2005](#)).

Global trends also indicate that females are at a greater disadvantage when it comes to school attendance, particularly in sub-Saharan Africa ([UNESCO, 2015](#)), although steady changes are occurring. There has been a major push for gender parity under both the EFAs and MDGs, and in some cases girls are now attending school at a greater rate than boys. However, in some countries girls may drop out earlier due to early marriage and boys may drop out earlier to participate in labor.

The literature generally shows that rural areas have lower school attendance rates compared to urban counterparts. Children residing in urban centers are nearly twice as likely to be enrolled in school as children living in rural areas ([United Nations, 2013b](#)). Several reasons have been found for this: schools are fewer and further away ([Al-Samarrai & Reilly, 2000](#)), households tend to be more impoverished, and programs assisting children in need of educational assistance tend to be focused in urban areas. In earlier studies, there were indications that more orphans were prevalent in rural areas living within relatively impoverished female headed households ([Bicego et al., 2003](#); [Nyamukapa, Foster,](#)

Lewis, & Gregson, 2002; Monasch & Boerma, 2004). The expectation of obtaining a job in the formal employment sector is also lower in rural areas, lower parental educational levels and traditional attitudes, as well as more children per household all tend to impact rural children's school attendance (Al-Samarrai & Reilly, 2000). In some African countries, early marriage for girls has resulted in low attendance rates (Lloyd & Mensch, 2008).

## 2. Methods

### 2.1. Research questions

This study aimed to describe changes in sub-Saharan Africa since the peak of earlier research over a decade ago (Ainsworth et al., 2005; Bennell, 2005; Case et al., 2004) to update the literature and as a potential gauge of the international efforts. The questions we specifically addressed, and our hypotheses were:

1. Orphans would be at a disadvantage overall, and maternal orphans would be at a greater disadvantage compared to paternal orphans;
2. Household wealth would have a significant impact across all groups;
3. Children living with parents would show the highest attendance rate, followed by children living with grandparents, then other relatives, and finally with non-relatives.
4. Girls would still lag behind boys in general; and
5. Rural children would be at a disadvantage over urban children

### 2.2. Sample

Since 1984 the United States Agency for International Development (USAID) has conducted DHSs in developing countries to regularly monitor and evaluate populations and programs (Vaessen, Thiam, & Lê, 2005). Standard DHS are composed of three questionnaires; the data for this paper are taken from the Household Questionnaire, which is administered by an in-country institution to a stratified random sample of non-institutional households (Case et al., 2004; Fabric, Choi, & Bird, 2012). Due to the emphasis on internal quality assurance, control procedures, and the ease of accessibility that allows for external review, DHS data are considered to be highly valid and reliable and are frequently utilized in peer-reviewed research (Fabric et al., 2012). DHS data have been used by previous researchers to measure education and are widely acknowledged as valid and reliable (Case et al., 2004; Fabric et al., 2012). An important benefit of the DHS data is that the surveys are nearly identical across countries, and from one administration year to the next, allowing for easy comparisons. DHS data are also particularly useful to those concerned with vulnerable children because they are designed to measure child wellbeing, including school attendance. It should be noted, however, that DHS data are household-based; therefore, they do not cover children in institutions, in the streets, in live-in working arrangements (e.g. at factories with dormitories), or boarding schools.

For this study, we used DHS data from eight surveys collected in five African nations, comprising eight country-years. A country-year is defined as the year the survey was administered in a particular country (e.g., Malawi 2004; Uganda, 2006). Four of the countries selected ranked in the top ten countries with the highest HIV/AIDS prevalence in 2013 (UNAIDS, 2013); all countries ranked in the lowest quartile of human development, according to the U.N.'s Human Development Index for 2013 (U.N., 2013a). The sample is limited to children in the 6–14 age range, which, according to DHS definitions, encompasses school-aged children. This conceptualization is consistent with data from the World Bank (2012), which indicates that the majority of sub-Saharan African countries consider 6 to be the beginning age for primary school. Because a main focus of this study was to isolate the independent roles of a child's relationship to the head of household, we excluded children who lived with their parents but whose parents were not the heads of household. Child-headed households (whose head

was younger than 18 years of age) were also excluded due to their small numbers. After applying these sample restrictions, there were 128 observations (about 0.1% of the sample) with at least one missing value on the study variables, which were treated with listwise deletion.

### 2.3. Measures

#### 2.3.1. School attendance

School attendance was asked using the question: "Did (name) attend school at any time this year?" As different country-years are classified under different phases of DHS, there are slight variations in the wording, but these discrepancies do not alter the meaning of the question. Earlier phases of DHS allowed *no*, *currently attending*, and *attended at some time*; however, the most recent phase combines the "currently attending" and "attended at some time" categories. Consequently, attending school was coded 1 if the child was currently attending or attended at some time and 0 if they did not attend school at any time during the year.

#### 2.3.2. Relationship to head of household

The head of household reported the child's relationship to them. Response options were characterized as their child, grandchild, other relative, or non-relative.

#### 2.3.3. Orphan status

Orphan status is a nominal variable that was measured using the following questions: "Is (name)'s biological father alive?" and "Is (name)'s biological mother alive?" Children were coded as non-orphans if both parents were living, and orphans if either their mother or father were deceased.

#### 2.3.4. Household wealth

The DHS-created wealth index used in this study was a composite measure of asset ownership, housing characteristics, services, and amenities (Filmer & Pritchett, 2001; Rutstein, 2008) and was used in place of common socioeconomic measures (e.g., household income or consumption) because household wealth represents long-term economic status (Rutstein & Johnson, 2004). The DHS variable was divided by 100,000 so its values were scalable to other variables included in the analysis.

#### 2.3.5. Urban/rural residence

This dichotomy was determined by the local researchers at the time of data collection. The indicator for rural was coded 1 for rural and 0 for urban residence.

#### 2.3.6. Gender

Gender was measured with an indicator for female with females coded as 1 and males, 0.

Descriptive statistics for all study variables by country are presented in Table 1.

### 2.4. Analytic approach

Because our outcome, school attendance, is binary, logistic regression was employed to determine the child's relationship to the head of household and orphan status with school attendance. Controls for age, gender, household wealth, and place of residence were included in all models. Predicted probabilities of school attendance based on the models were calculated to provide a more intuitive presentation of the role of relationship to head of household and orphan status in relation to school attendance. All analyses were performed separately for each country and year data were available.

**Table 1**Proportions and means<sup>a</sup> of study variables by country and year.

Source: Demographic and Health Surveys.

	Malawi		Mozambique	Niger		Uganda	Zimbabwe	
	2004	2010	2011	2006	2012	2006	2005	2011
Attending school	0.831	0.883	0.728	0.340	0.409	0.876	0.886	0.925
Relationship to HH								
Child	0.730	0.753	0.769	0.861	0.892	0.748	0.655	0.672
Grandchild	0.162	0.151	0.117	0.071	0.063	0.133	0.212	0.207
Other relative	0.095	0.087	0.099	0.044	0.028	0.105	0.117	0.106
Non-relative	0.013	0.010	0.014	0.024	0.017	0.013	0.016	0.015
Orphan	0.184	0.148	0.156	0.075	0.065	0.191	0.291	0.260
Age	9.803	9.726	9.726	9.474	9.439	9.822	9.987	9.950
Female	0.510	0.502	0.507	0.492	0.490	0.501	0.493	0.501
Wealth <sup>b</sup>	0.112	0.068	−0.187	−0.233	−0.239	−0.036	−0.192	0.241
Rural	0.855	0.864	0.716	0.841	0.853	0.899	0.758	0.765
N	15,368	30,675	15,123	12,549	18,931	12,446	10,176	9091

Abbreviations: HH = head of household.

Notes:

<sup>a</sup> All data are proportions except for age and wealth variables, which are means.<sup>b</sup> DHS-created wealth index used in this study was a composite measure of asset ownership, housing characteristics, services, and amenities. See Filmer and Pritchett (2001) and Rutstein (2008).

### 3. Results

Logistic regression results by country for school attendance are presented in Table 2 as odds ratios. Odds ratios indicate the change in odds of school attendance for a one-unit change in the independent variable. The odds ratios of interest here, the child's relationship to the head of household and whether or not they are and orphan, are from categorical variables. These odds ratios are the expected change in odds of school attendance compared to the omitted category. Odds ratios of 1 indicate no relationship, ratios > 1 indicate a positive relationship or increase in odds and odds ratios below 1 indicate a negative relationship or decrease in the odds of school attendance. For example, the coefficient for children who are not related to the head of household in the 2004 Malawi data is 0.38. This indicates that the odds of attending school for a child living with a head of household to whom they are not related is only 0.38 times that of the odds of attending school for a child if the

head of household is a parent. The omitted category for orphan status is non-orphan, resulting in an odds ratio that represents the change expected in odds of school attendance for orphans.

There are fairly clear patterns for how the child's relationship to the household head is related to school attendance. There were no significant differences for grandchildren of their household head compared to those who were children. Children living with a relative other than a parent or grandparent had lower odds of attending school although the effects are only statistically significant in the 2010 Malawi, 2011 Mozambique, and 2011 Zimbabwe data. Living with a non-relative head of household was negatively related to school attendance compared to those living with a parent. Statistically significant odds ratios ranged from a low of 0.08 in Uganda 2006 to a high of 0.38 and Malawi 2004. These odds ratios indicate a rather strong relationship between living with a non-relative head of household and a parent.

**Table 2**

Head of household and orphan status and school attendance: odds ratios from logistic regression.

Source: Demographic and Health Surveys.

	Malawi		Mozambique	Niger		Uganda	Zimbabwe	
	2004	2010	2011	2006	2012	2006	2005	2011
Relationship to HH								
Child	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Grandchild	0.94	0.87	0.88	0.75*	1.08	0.97	0.87	0.92
Other relative	0.83	0.58***	0.55***	0.64**	0.63**	0.65**	0.92	0.59**
Non-relative	0.09***	0.11***	0.29***	0.90	0.86	0.18***	0.19***	0.17***
Orphan	0.89	0.97	0.91	1.07	0.80	0.82	0.81	0.78
Relationship to HH X orphan								
Child	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Grandchild	1.26	0.93	0.93	1.00	0.93	1.13	1.05	0.82
Other relative	1.12	1.06	1.19	1.34	1.72	1.40	0.89	1.06
Non-relative	4.01*	2.67	1.14	0.83	1.65	0.41	0.78	1.32
Age	1.24***	1.24***	1.20***	1.06***	1.13***	1.32***	1.08***	1.08***
Female	1.25***	1.18***	1.01	0.52***	0.71	0.89*	1.23**	1.19
Wealth <sup>a</sup>	2.17***	2.28***	2.75***	2.52***	2.02***	3.17***	1.96***	2.13***
Rural	0.93	1.12	1.01	0.68**	0.60***	1.41	1.56	1.62*
N	15,368	30,675	15,123	12,549	18,931	12,446	10,176	9091

Abbreviations: HH = head of household.

Note:

<sup>a</sup> DHS-created wealth index used in this study was a composite measure of asset ownership, housing characteristics, services, and amenities. See Filmer and Pritchett (2001) and Rutstein (2008).\*  $p < 0.05$ .\*\*  $p < 0.01$ .\*\*\*  $p < 0.001$ .

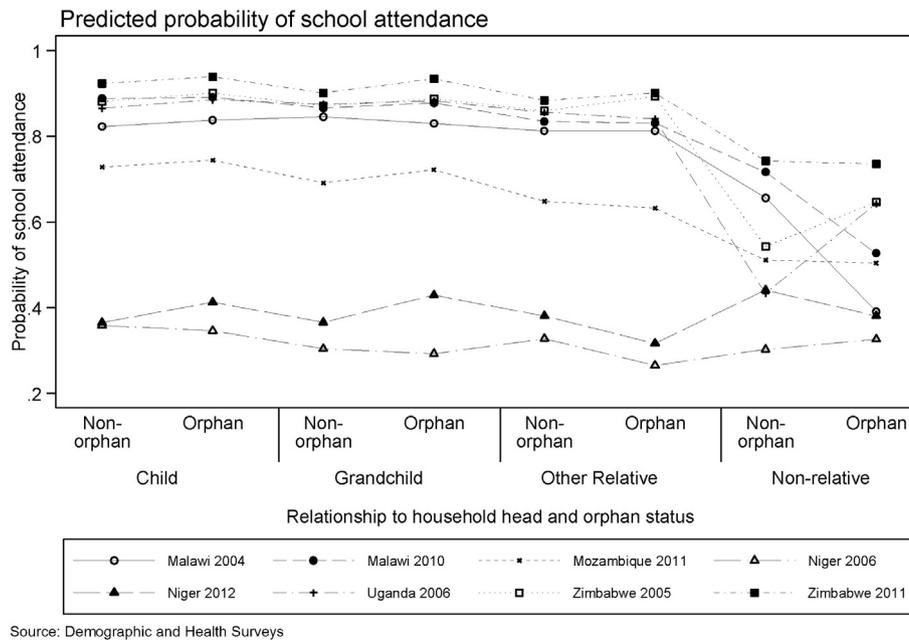


Fig. 1. Predicted probability of school attendance.

The odds ratios for being an orphan were positive, meaning that being an orphan was related to an increase in the other school attendance compared to non-orphans, with the exception of Niger 2006. None of these odds ratios, however, were statistically significant.

To explore the possibility that the relationship between school attendance and orphan status depends on who the child lives with (their relationship to the head of household), we included an interaction between the relationship to head of household and orphan status variables. There is not a clear pattern to the results of these interactions in terms of whether orphan status mattered more or less for children living different kinds of heads of household.

Generally, the relationship between controls and school attendance are as expected. Older, female (with the exception of Niger 2006 and 2012 and Uganda 2006), and wealthy children were more likely to attend school. The relationship with rural residents in school attendance was not consistent and in some cases unexpected. Consistent with typical expectations about school attendance and rural communities where transportation and work responsibilities could be barriers to school attendance, children living in rural areas in Niger in 2006 and 2012 were less likely to attend school. Unexpectedly, however, rural children in Uganda 2006, and Zimbabwe 2005 and 2011 were more likely to attend school than their urban counterparts, although the odds ratio was only significant in the Zimbabwe 2011 data. In bivariate analyses (not shown), rural children are consistently less likely to attend school than urban children but the relationship turns positive when wealth is added to the model. This suggests that in these countries, rural children are more likely to attend school than urban children who are comparable in wealth. Although, not surprisingly, coefficient sizes were somewhat attenuated going from bivariate to multivariate results, there were no other discrepancies between them.

Fig. 1 presents predicted probabilities of school attendance based on the models reported in Table 2 and provides a more intuitive representation of the estimated relationships. To calculate the predicted probabilities, the relationship to head of household and orphan status variables were varied systematically while the controls of age, gender, wealth, and rural status or held at their sample means. There are fairly clear patterns observable here. The probability of attending school is quite high among children in most of these samples (i.e., near or

above 0.8), Niger being the exception where the probability of attending school hovers around 0.4. Furthermore, there is little difference of school attendance within country regardless of the child's relationship to the head of household or orphan status. It is only among children living with non-relatives where the probability of school attendance drops. Among children living non-relatives, although almost always associated with a lower probability of school attendance compared to children with other heads of household (the exception is Niger), orphans usually have a lower probability of school attendance (the exception is Zimbabwe).

#### 4. Discussion

Despite the large sample size in this study, there are a number of limitations that warrant cautious interpretations of the results. The use of cross-sectional data does not permit modeling of school attendance over time and across a child's life events. Conceptual definitions provide another barrier to interpretation of results. For the measure of school attendance, the answer "attended at some time" in the past year offers survey respondents variable interpretations of what constitutes "some time." This ambiguity allows respondents to report school attendance affirmatively, even if it was as little as one time per week or even less. Thus, these results may be overestimations of actual, regular school attendance. Moreover, this study has exclusively focused on school attendance as a measure of schooling outcomes. While attendance is a commonly-used and valid measure, other variables such as schooling attainment can provide additional information regarding differences in years of education between categories of children. Finally, the five countries do not necessarily represent the sub-Saharan region, therefore the findings are not generalizable to the entire region. Despite these limitations the findings portend some policy, practice and research implications.

##### 4.1. Orphan status

While orphaned children are historically viewed as one of the most marginalized populations, orphan status does not inherently indicate the need for schooling-related assistance (Ainsworth & Filmer, 2006).

Our results suggest that programs and initiatives that have focused on orphans and vulnerable children (OVC) have made significant differences although these are probably combined with other factors such as educational outreach programs, universal primary education initiatives, lower HIV infection rates, and increased income. In addition, it should be remembered that orphans have multiple vulnerabilities in addition to schooling, especially in terms of their psycho-social wellbeing from trauma, loss and stigma (Cluver, Gardner, & Operario, 2007). Research has also differentiated between maternal and paternal orphans, suggesting that since school attendance is tied to household wealth, those who lose their fathers may be at a greater disadvantage than those who lose their mothers. Our data did not show significant differences between the two groups of orphans, however.

#### 4.2. Relationship to head of household

Children living with non-relatives were at significantly increased risk of not attending school in comparison to all other household structures, regardless of orphan status across all country-years. Little is known of their situation and status in the household, but as Roby (2011) points out, in many cases of informal foster arrangements, a substantial number of children who are placed away from their communities in kin or non-kin households for educational purposes end up being treated as child servants. These non-related children are relatively isolated due to their absence from school, increasing their risk of other harm. In a study of child domestic workers in South Sudan, over half (51%) of the randomly selected households had employed at least one domestic worker, and 63% of them were children under 18. South Sudan has the minimum employment age of 14, but they found that most started working at 12–15 years, and 20% had started working at below age 8 (Munyuwiny & Mori, 2013). Special attention should be focused on identifying children growing up in such care arrangements in order to ascertain their needs and advocate for their rights. Programs targeting these children should include case management and reunification services or other permanent care arrangements with ongoing monitoring and oversight by statutory mechanisms.

Although of somewhat less concern, in Malawi (2010), Mozambique (2011) and Zimbabwe (2011) children who live with relatives further removed by blood than grandparents continue to be attending school at a significantly lower rate than children living with parents. Much has been written about the stretching of resources and feminization of kin who take in orphaned children (Foster et al., 2005). In addition, although it is not known whether the relatives raising these children have biological children in the same household, some smaller scale studies have suggested a relative disadvantage for kin children living in such arrangements (Roby et al., 2014). Intra-household discrimination of children cannot be ruled out.

#### 4.3. Household wealth

For each country-year, household wealth was consistently the strongest predictor of school attendance. This aligns with findings from the United Nations (2013b) where children and adolescents residing in the poorest households were three times more likely to be out of school than children living in more affluent households. Similarly, Beegle et al. (2006) found wealth a protective factor for schooling, even among orphans. In our sample, the attendance rates were clearly linked to levels of household wealth in every country. This disparity may play even a larger role in very low income countries such as Niger, with a national poverty rate of 48.9% and Gross National Income of \$410 per capita in 2014, compared to \$629 for sub-Saharan countries and \$1638 for all low income countries (World Bank, n.d.). Among the countries in this study, Niger compares with 2014 GNI per capita of Uganda (\$670), Zimbabwe (\$840), Malawi (\$250), and Mozambique (\$600) (World Bank, n.d.). It is interesting to note that even with greater rates of poverty and lower GNI, Zimbabwe's children are attending school at

much higher rates, suggesting that there are likely other factors interacting with household wealth, such as culture as discussed elsewhere in this study.

Generally, programs aimed at providing free or subsidized schooling costs may help ameliorate attendance disparities across income levels (Sharma, 2006), as well as household economic strengthening programs such as cash transfers. Already in many parts of Africa cash transfers conditioned upon school attendance have shown to be effective in increasing educational achievements and reducing child work (de Janvry, Finan, Sadoulet, & Vakis, 2006). Reducing opportunity costs of attending school can often lead to child labor, and these trends should be monitored. Ensuring that government and civil society programs providing school-related assistance reach the rural areas is another approach to reducing the impact of poverty on the poor.

#### 4.4. Gender

The variance by gender in different countries may be attributable to cultural factors, although they are changing. According to the United Nations Gender Statistics MDG Database (2015), Niger and Uganda in our study are still among the 15 countries in the world with the greatest gender disparity against girls. The UN data base shows enrollment ratio of girls (compared to 100 boys) in Niger has jumped from 0.37 in 1990 to 0.69 in 2013, representing a very significant improvement. Uganda has also jumped from 0.58 to 0.87 in the same time period, but both countries struggle to close the disparity. One explanation offered by Winthrop and McGivney (2014) is that more than 75% of the girls in Niger are married before age 18, and this is a deeply embedded cultural practice, especially in the rural north (IRIN, 2009). There are also pockets where boys are dropping out of school, likely to participate in the labor market. A closer examination of the relationship between schooling, poverty, and child labor would help guide interventions on the ground.

#### 4.5. Urban/rural disparity

U.N. (2013b) data show that children in rural areas are twice as likely to be out of school as urban children, and in our bivariate analysis this was consistently true. However, when wealth is included in the analysis, rural children from wealthy households in Uganda and Zimbabwe were more likely to attend school (at a significant level for Zimbabwe 2011) than their urban counterparts. This underscores the primacy of wealth as an indicator for school attendance. Another potential explanation for this anomaly is that children living in urban areas may be more apt to participate in the labor force and thus less likely to be attending school, or that more children in urban areas are living with non-relatives. In Zimbabwe, it was found that the existence of urban slums created decreased net enrollment ratios (UNESCO, 2008), another possible factor tipping the scale. But in Tanzania among the Maasai, pastoralist households were least likely to invest in schooling as their traditional definition of wealth was defined by livestock, and children were needed to tend the animals (Hedges, Mulder, James, & Lawson, 2015).

### 5. Conclusion

The Universal Declaration of Human Rights proclaims that children are entitled to “special care and assistance” (United Nations, 1948, Art. 25.2) due to their inherent vulnerability and need for protection. Similarly, the UNCRC affirms education to be a fundamental human right. States who ratify the CRC pledge to provide all children with equal opportunity to education and promote regular school attendance. Achieving universal primary and secondary education have been high priorities for the international community, as evidenced by strides made under global efforts such as the MDGs and EFA programming, as well as other, smaller efforts. Many have focused on ensuring that the

most vulnerable groups among children—those who are orphaned, impoverished, living outside of parental care, and female—have access to education. This study independently corroborates other evidence that significant gains have been made. However, challenges still remain, particularly children in poor households, those who live outside of their immediate or extended families, children in rural communities whose families are not wealthy, and girls who live in countries with deeply imbedded cultural practices.

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