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Migration, Household Configurations, and the Well-Being of Adolescent Orphans in Rwanda

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Abstract

This study uses data from the 2002 Rwandan census to situate the discourse on migration and orphan well-being within the context of the household. According to its findings, migrant orphans are less likely than non-migrant orphans to live in households with less favorable structural characteristics such as single-parent households. Significant differences are also found in the implied gains to living standards and schooling associated with migration among paternal, maternal, and double-orphans. However, the higher living standards and schooling attainment of orphan migrants relative to their non-migrant counterparts disappear within child-headed household contexts. More generally, the results indicate that the higher living standards of migrant orphans are in part driven by the fact that they mostly live in households with migrant household-heads or migrant spouses. Yet the analysis also suggests that orphans living within these contexts experience higher levels of intra-household discrimination in investments in their schooling, relative to their orphan counterparts who live in non-migrant households.

Keywords

Orphans; Poverty; Children; Schooling; Wellbeing

Introduction

As a result of the expansion of studies on the relationship between orphan status and child well-being in developing countries, we now know that with few exceptions (Lindblade et al. 2003), orphan status has deleterious consequences for the welfare of children. Orphans are less likely to be enrolled in school (Ainsworth et al. 2005; Kobiané et al. 2005), face higher poverty risks—in specific contexts—(Nyamukapa et al. 2003; Siaens et al. 2003), and have worse health outcomes (Gregson et al. 2005; Miller et al. 2007) than non-orphans. Prior studies also indicate that the orphan disadvantage can be moderated by a number of factors ranging from extended family arrangements to appropriate policy interventions (Drew et al. 1998; Ntozi et al. 1999; Nyamukapa and Gregson 2005). In addition, the migration of orphans to households in other communities is becoming an essential part of familial strategies used to negotiate through the consequences of parental mortality (Ansell and van

Blerk 2004; Ansell and Young 2004; Masmas et al. 2004). The discourse on these strategies is part of a growing level of interest in the migration of orphans in the existing literature. As a number of studies now indicate, orphans are generally more migratory than non-orphans (Cluver et al. 2007; Masmas et al. 2004, Urassaa et al. 1997).

Despite progress in research on orphan migration, however, a number of outstanding issues are yet to be addressed. For example, empirical research on the relationship between orphan migration and objective indicators of well-being (for example, schooling, living arrangements, and poverty status) is generally limited. Furthermore, previous research on orphan migration does not incorporate decompositions of orphan status into the three main orphan groups (that is, maternal, paternal, and double-orphans) in order to assess whether migration is associated with differential changes in well-being across these groups. Notwithstanding evidence showing that the migration status of household heads and their spouses have ramifications for child well-being (Beiser et al. 2002; Frank and Hummer 2002), this insight has also not been used to examine welfare differences among migrant orphans living in migrant or non-migrant households in their destination areas.

In this study, therefore, data from the 2002 Rwandan census are used to contribute to the literature by examining several dimensions of the relationship between migration and the well-being of orphans between ages 12 and 17. Compared to data sources such as the Demographic and Health Surveys (DHS), the 2002 census data has the advantage of capturing needed information on inter-district migration useful for analyzing internal migration processes. This migration-related information is also available for individuals, and unlike the DHS, is not restricted to individuals in the reproductive ages. Using the unique perspective provided by these data therefore, the study makes three contributions to the literature. First, it underscores the significance of the association between internal-migration processes and differences in the household characteristics of orphaned children. Second, it demonstrates how contextual differences between migrant and non-migrant households mediate disparities in two indicators of child welfare (i.e., living standards and educational attainment) among migrant orphans.¹ Finally, the study empirically highlights the ramifications of migration processes for the living standards and education of orphans living in child-headed households. The implications of these households for the orphan disadvantage relative to non-orphans are also examined and the outcomes of their migrant and non-migrant orphan residents described.

Background

The 1994 genocide is perhaps the most significant social transformation that occurred in Rwandan society within the past two decades. Estimates of the mortality impacts of the war indicate that close to 800,000 people, or about ten percent of Rwanda's pre-genocide population, died during the conflict (Hintjens 1999; Jayaraman et al. 2007). The impacts of the genocide on the surge in Rwanda's orphan population are extensively documented elsewhere (Boris et al. 2006; Rose 2005; Tiemessen 2004). Yet the size of Rwanda's orphan

¹As is Ruland et al. (2005), orphanhood is generally defined as the loss of one or both parents. Migrant orphans are, therefore, orphans who have changed their place of residence. More specific definitions of the different orphan types used in the analysis are presented in the "Data, Definitions and Methods" section.

population continued to increase in the post-genocide years as a consequence of increases in its HIV/AIDS mortality trends (Mirza 2006; UNICEF 2006).

Consistent with prior studies, existing studies show that there is positive association between orphan status and adolescent socioeconomic disadvantage in contemporary Rwanda. Compared to their non-orphan counterparts, for example, Rwandan orphans are more likely to be malnourished (Siaens et al. 2003). Thurman et al. (2008) further suggest that they face higher levels of poverty. Additionally, Veale and Dona (2003) posit that orphan status is a predictor of homelessness among Rwandan children. Murray et al. (2005) also maintain that Rwandan adolescent orphans initiate sexual intercourse at earlier ages than their non-orphan counterparts. More recent studies indicate that the orphan disadvantage in Rwanda also extends to children's schooling indicators. For example, Akresh and De Walque (2008) report a negative association between orphan status and children's educational attainment, which is consistent with findings reported in earlier studies (e.g. Siaens et al. 2003), showing that the Rwanda's orphans are comparatively less likely to be enrolled in school.

Previous studies, however, do not address the extent to which the relative disadvantage of Rwanda's orphans is conditional on migration status, even though available evidence indicates that there is a significant amount of migration among orphans in contemporary Rwandan society. Dona (2001), for example, situates these movements within the context of the government's effort to place separated children in foster families. More generally, scholars of orphan migration in Africa have suggested that such movements are also a product of individual-level decisions made by adolescent orphans who mostly migrate unaccompanied by their parents or guardians (Muchini 1993). Orphan migration, moreover, can occur as part of the social reorganization of families following the death of a parent. For example, migration among single-parent orphans is sometimes associated with the remarriage of their surviving parent (Foster and Williamson 2000; Ntozi 1997). Regardless of their reasons for moving, however, migrant orphans, in contrast to their non-migrant counterparts, are likely to live in significantly different household contexts upon their arrival in their destination areas. These differences have significant implications for disparities in adolescent well-being that are yet to be addressed.

Conceptual Perspectives

A review of existing studies on the consequences of orphan migration generally yields conflicting insights into the relationship between migration and orphans' socioeconomic well-being. Some scholars, such as Foster and Williamson (2000), suggest that orphans who migrate improve their socioeconomic circumstances because their movements are driven by a desire to circumvent their current socioeconomic constraints. In contrast, others suggest that migration is associated with a general deterioration in the wellbeing of orphans or a decline in specific social outcomes. Cluver et al. (2007), for example, argue that adolescent orphans who migrate are more likely to have emotional and behavioral problems compared to other children. Likewise, in terms of schooling outcomes, Ansell and Young (2004) maintain that orphan migration is associated with a higher risk of dropping out of school.

Given the relationship between household-level factors and child well-being articulated in prior research, the association between migration and orphan well-being is also likely to be affected by the contextual characteristics of orphans' households. For example, family structure, female household headship, and other parental characteristics are significantly associated with disparities in children's well-being (Desai 1992; Shapiro and Tambashe 2001; Sudha 1997). Yet research also shows that these household-level influences are themselves shaped by the dynamics of general migration processes. In terms of family structure, some studies (Brandon 2002, Hernandez 2004) suggest that the prevalence of single-parent households is lower among migrants than non-migrants. Wilson (2001) notes that migrant families are more stable than non-migrant families and attributes these differences to the fact that migrants are positively selected for family stability. Root and De Jong (1991) extend this selectivity nexus further in their description of differences in parental-level attributes. In particular, they argue that parental human-capital is higher in migrant than non-migrant families because more educated parents have a greater incentive to migrate than their less educated parents. All together, these differences suggest that children in migrant households are less likely to be exposed to adverse situational influences (for example, single-parent households), which are negatively associated with child well-being, than their counterparts who live in non-migrant households.

At the same time, systematic studies on the relationship between such differences in household context and the well-being of orphans are generally absent from the literature. Conceptually, however, these household-level differences can affect orphan well-being in several different ways. First, orphans migrating with a surviving parent searching for a new spouse may be more likely to live in migrant than non-migrant households in their destination areas. Moreover, remarriage among these migrant parents can improve the well-being of their children by re-locating orphans from more disadvantaged single-parent households to two-parent households; the latter are associated with better outcomes among children than the former (Deleire and Kalil 2002; Kohl et al. 2000; Manning and Lamb 2004). Similarly, because double-orphans lack any surviving parent, they may be less likely to derive such household benefits stemming from parental migration. Yet the higher levels of human-capital found in migrant households suggest that they may be more able to adopt double orphans than non-migrant households. Another implication of differential household contexts is associated with previous studies showing that orphans sometimes have parents who migrated from their places of origin before their death (Few 2005). For these orphans, migration may involve a return to their parental communities of origin where they will conceptually be more likely to live in non-migrant households (for example, with extended family members who did not migrate with their parents) than migrant households. In general, however, orphans may also live in migrant or non-migrant households as a result of less systematic social processes. For example, given the growing impact of rural-urban migration on Rwandan urbanization trends (Des Forges 2005; UNDP 2007), orphans in urban areas will simply be more likely to live in migrant households than their counterparts in rural areas on the basis of their current place of residence.

A significant number of orphans also live in child-headed households (Foster et al. 1997; Wood et al. 2006). These household units generally have a child as their oldest member whose role as a household-head involves being responsible for the organization and

sustenance of all household members. Few studies have however investigated the ways in which child-headed household contexts are likely to shape the living standards and educational attainment of migrant and non-migrant orphans. Previous studies suggest that orphans in such households experience additional psychological and social disadvantages relative to other children (Donald and Clacherty 2005). Furthermore, Dalen et al. (2009) broadly associate orphan residence in child-headed households with a greater likelihood of living in social and economic disadvantage. Limited empirical research on child-headed households has however resulted in an incomplete understanding of whether the disadvantages associated with such contexts are mediated by the migration status of the heads of child-headed households.

Finally, the relationship between migration and child well-being may also be differentiated among various types of orphans. Prior research routinely suggests that double-orphans have worse socio-demographic outcomes than other orphans (Monasch and Boerma 2004), and that maternal orphans are more disadvantaged than their paternal-orphan counterparts (Evans and Miguel 2007). One implication of these findings is that for single-parent orphans the gender of the deceased parent does matter. In general, however, the extent to which these disparities are possibly influenced by migration processes has not been extensively investigated, even though the evidence indicates that the likelihood of migration varies across orphan type. Ford and Hosegood (2005), for example, report that maternal orphans are more likely to migrate than paternal orphans. Ueyama (2007) also finds higher migration probabilities among maternal and double orphans. Intuitively, therefore, variations in the likelihood of migration imply that if migration is associated with positive changes in child well-being, maternal and double orphans will be more able to realize these improvements than their paternal-orphan counterparts. Surprisingly, however, empirical studies examining the dynamics of these associations are generally lacking.

Migration as a Pathway

In the current analysis, therefore, the significance of migration as a pathway to well-being among orphans is examined by assessing the following hypotheses. The first is that orphans in migrant households are less likely to have adverse household characteristics than their counterparts in non-migrant households. Second, although orphan status is negatively associated with living standards and educational attainment, the size of the orphan disadvantage is smaller in migrant than non-migrant households. Third, orphan migration is positively related with indicators of well-being compared to non-migration. Fourth, although a socioeconomic disadvantage is expected to be found among orphans in child-headed households, the disadvantage will be lower among migrant than non-migrant orphans. Finally, double-orphan migration is expected to have a greater positive association with well-being than migration among maternal and paternal orphans.

Data, Definitions, and Methods

Data from a ten percent sample of the 2002 Rwanda census (Minnesota Population Center 2009) are used in the examination of the study's hypotheses. Since these data are cross-sectional their import is based on their ability to help us identify important associations

between orphan status and child well-being in a context where alternative data sources are largely limited. Given the study's focus on orphaned adolescents, the final sample is restricted to children between ages 12 and 17. This restriction also captures the outcomes of children who were between the ages of 4 and 9 during the 1994 Rwandan genocide. At the same time, the possible impacts of HIV/AIDS, estimated at about 7 % in 1994 (UNAIDS/WHO 2008), on parental mortality among these adolescents cannot be entirely discounted.

The 2002 census data contains information on children's basic demographic information (i.e. age and sex), their schooling indicators, and the survival status of their parents. The latter are used to distinguish between three types of orphans; maternal and paternal orphans, identified as children without a surviving mother and father respectively, and double orphans, defined as children with two dead parents. The impacts of orphan status are therefore inferred by comparing these orphans with non-orphans. Unlike the former, non-orphans are defined as children who have both parents alive.

Internal-migration status is defined using census information on migration between Rwandan districts. Accordingly, migrant adolescents are defined as adolescents who have ever changed their district of residence. A similar strategy is used to identify migrant household heads and spouses in the households. Consistent with other studies (Hernandez and Charney 1998), migrant households are defined as households with either a migrant household head or migrant spouse. One limitation involved in using this definition is that it does not allow us to identify migrant parents and their children who are extended family members living within households. Yet, as the results demonstrate, important insights on the association between migration and orphan well-being can still be derived when using the study's definition of migrant households.

Also available in the Rwandan census data is household-level information on the ownership of various assets and amenities (for example, ownership of TVs, radios, computers, access to electricity supply and the internet). In the absence of reliable household economic information in African countries, a number of scholars (Schellenberg et al. 2003) have used information from similar household-level data to construct summary measures of socioeconomic conditions. Following these insights, the study uses principal components analysis to transform data on household amenities and assets into a proxy living standards index (see, Filmer and Pritchett 2001; Montgomery et al. 2000). By employing this technique the analysis uses a generally reliable data reduction strategy to transform information on multiple dimensions, that is, the various household amenities, into a one dimensional indicator (the living standards index) with minimal loss of the original information.

The two indicators of well-being examined in the empirical analysis are living standards and educational attainment. However, the analysis begins by investigating the association between internal-migration and living standards. In general, the association between orphan status and living standards is described using OLS regression models with robust standard errors that adjust for the clustering within households. The basic form of the estimation model is as follows:

$$\ln X_j = \alpha + \beta_a M_j + \beta_b O_j + \beta_c C_j + \beta_d CM_j + \beta_e H_j + \varepsilon_j \quad (1)$$

$\ln X_j$ is the natural log of the living standards indicator for children in household j . This logarithmic function makes it possible to transform the estimated coefficients for the right-hand side variables (i.e. $\exp \beta - 1 \times 100$) to estimate the percentage change in household living standards associated with one unit change in the indicator. X_j is thus considered to be dependent on whether or not adolescents live in migrant households (M); their orphan status (O), and demographic attributes, e.g., age and sex (C). Age and sex indicators are important because they may be associated with household perceptions concerning future economic commitments to orphans and thus their willingness to adopt them. Furthermore, the model includes indicators of adolescent migration status (CM) and other household-level indicators (H). Interactions between orphan status (O) and adolescent migration status (M) can therefore be used to examine variations in the living standards of orphan migrants and non-migrants. In addition, by stratifying the sample to distinguish between children in migrant and non-migrant household, the dynamics of these associations within these two household contexts can also be examined.

The next stage of the analysis focuses on the relationship between internal-migration and educational attainment conditional on orphan status. Schooling differences among orphans and non-orphans are also useful proxies for intra-household discrimination in schooling investments among children (Case et al. 2004). Household fixed-effects model are therefore used to compare adolescent schooling differences in migrant and non-migrant households. In general, the educational attainment estimation equation is as follows:

$$E_{ij} = \alpha_0 + \alpha_1 + \beta_a O_{ij} + \beta_b C_{ij} + \beta_c CM_{ij} + \varepsilon_{ij} \quad (2)$$

E_{ij} measures the completed years of schooling of child i in household j , and is a function of orphan status (O), child demographic attributes (C), and adolescent migration status (CM). Interactions between orphan status (O) and child migration status (CM) are subsequently used to examine the association between educational attainment and migration status among orphans. Since household characteristics are fixed, Eq. 2 is also applied separately to children in migrant and non-migrant households in order to compare the relative schooling disparity associated with orphan status and adolescent migration status in both household types.

Results

Migration and Household Living Arrangements

According to Table 1,² Rwandan adolescents are more likely to live in non-migrant than migrant households, regardless of orphan status. Considerable variation however exists in the characteristics of these two household types. For both orphans and non-orphans, living in migrant rather than non-migrant households is associated with a lower likelihood of living

²This refers to both grand-children and great grandchildren. The relationship codes in the census combine both categories.

with single-parents, in child-headed households (i.e., households with household heads below age 21), or in female headed households. In short, these patterns are consistent with the notion that migrant households are less likely to have characteristics known to adversely affect child welfare compared to non-migrant households. Household heads in migrant households also have slightly higher levels of schooling than their counterparts in non-migrant households. Nevertheless, the generally low levels of schooling among all Rwandan household heads seem to imply that the role of educational selectivity in mediating these schooling differences is relatively limited.

Compared to orphans, however, non-orphans are on average less likely to live in unfavorable household contexts as some previous studies suggest. For example, the likelihood of living in female-headed or single-parent households is comparatively lower among non-orphans among children in both migrant and non-migrant households. Significantly, variations in household characteristics are also conditional on differences in orphan-type. Among orphan adolescents, paternal-orphans are the most likely to live in single-parent or female-headed households. This is consistent with the fact that unlike other orphans, paternal-orphans have mothers who are still alive. The likelihood of living in child-headed households also varies across the three orphan groups. Double-orphans, for example, are the most likely to live in child-head households followed by their maternal-orphan counterparts. As expected, non-orphans are significantly less likely to live in child-headed households in both migrant and non-migrant household contexts.

Despite the unfavorable household characteristics of orphans, the results also suggest that orphans may experience greater improvements to their living arrangements than non-orphans by living in migrant rather than non-migrant households. In other words, differences in the prevalence of single-parent, female-headed, or child-headed households, between migrant and non-migrant households, are greater among orphans than non-orphans. These differences are also greater among double-orphans than their maternal or paternal orphan counterparts. Since most migrant double-orphans live in migrant households, the analysis also implies that migration has a greater positive association with improvements in household contexts among double-orphans than among other adolescents.

Variations in adolescent migration status in Table 1 provide several insights into our understanding of the dynamics of orphan migration processes. First, as in Ueyama (2007), orphans are more likely to migrate than non-orphans. According to Table 1, this differential is mainly driven by the outcomes of migrant double-orphans and their maternal-orphan counterparts. Second, orphan migration seems to occur within specific social institutional contexts. Upon arrival at their destination areas migrant orphans, like their non-orphans counterparts, are more likely to reside in migrant than in non-migrant households. In part, this disparity is driven by the fact that migrant orphans are more likely to be related to their household heads in the former than in the latter. More generally, disparities in living arrangements point to critical differences in the familial determinants of adolescent migration, conditional on orphan status. For example, approximately one-fifth of all orphan migrants in non-migrant households are the grand-children (or great-grand children) of their household heads. Since non-migrant household heads never changed their places of residence, this finding points to two related possibilities. First, the adult children of these

non-migrant household heads (e.g., the parents of these migrant orphans) must have migrated away from home in the past. Second, current migrant orphans, who are the grandchildren of non-migrant household heads, migrated in order to return to their ancestral districts of origin and live with members of their extended family. Furthermore, paternal and maternal migrant orphans living in migrant households are more likely to be the children of their household heads in their destinations areas. Thus, there is a positive association between parental migration and orphan migration among single-parent migrant orphans with their surviving parent.³ Migrant double-orphans in migrant households, however, are more likely to have sibling household heads than other adolescent migrants who live in migrant households.

Migration and the Living Standards of Orphans

Table 2 examines various dimensions of the relationship between migration and living standards among adolescents, conditional on orphan status. It begins by presenting baseline estimates of the relative differences in living standards among orphans and non-orphans. Accordingly, in Model 1, after demographic characteristics are controlled, maternal and paternal orphans are significantly more likely to have lower living standards than non-orphans. Specifically, the coefficients suggest that, on average, the living standards of maternal and paternal orphans are lower by about three and eleven percentage points respectively [i.e. $\exp(\beta - 1) \times 100$] compared to those of non-orphans.

Three interaction terms are included in Model 2 to account for differences in adolescent migration status among the three orphan types, in addition to controls for other contextual characteristics. Among other things, this strategy is used to assess whether orphan migration is associated with greater improvements to living standards relative to non-migration, and to compare the dynamics of the association among the three orphan groups. Not surprisingly, the results show that migrant orphans have slightly higher living standards than non-migrant orphans. However, the suggested living standards improvements associated with migration are not consistent across the three orphan groups. In particular, the magnitude of the migration-living standards association is largest among *paternal* orphans. Furthermore, in relative terms, double-orphans experience about half the improvements associated with migration than their paternal-orphan migrant counterparts. Among maternal-orphan migrants, however, Model 2 indicates that migrants are not significantly better off than non-migrants. In other words, although migration is associated with higher living standards among other orphans, maternal-orphans do not experience significantly higher living conditions associated with their decisions to migrate.

Contextual controls included in Model 2 also provide further insight into the association between adolescents' living standards and a variety of correlates. For example, living in migrant than non-migrant households is significantly associated with about a five percent increase in living standards. As expected, there is also significant socioeconomic disadvantage associated with living in child-headed and single-parent households. Likewise,

³The census data does not make it possible to specifically determine whether these orphans and their parents migrated together.

adolescents in urban areas are more likely to have higher household living standards than their counterparts who live in rural areas.

In Model 3, additional controls are included in the analysis to examine whether the positive association between orphan migration and household living standards is mediated by their relationships with household heads. For the most part, the results show that the migration-related benefits persist irrespective of orphans' relationship with their household heads. One implication of this finding is that improvements in living standards associated with migration among paternal and double orphans are not necessarily driven by the role of migration in placing them in households headed by close relatives.

Baseline orphan disadvantages shown in Model 1 conceal significant contrasts in relative living standards within migrant and non-migrant household contexts. For example, compared to the results in Model 1, orphans in non-migrant households are even more disadvantaged relative to their non-orphan counterparts (Model 4). Conversely, migrant households appear to provide a structural buffer to the living standards of orphans relative to non-orphans. As the results suggest, among children in migrant households, maternal and double orphans have relatively higher living standards than their non-orphans counterparts (Model 6). These differences may however reflect the fact that wealthier migrant households are more likely to adopt orphans than migrant households with less wealth. At the same time, although the disadvantage of paternal orphans is consistent in both Models 4 and 6, the paternal-orphan disadvantage is smaller, in relative terms, in migrant household contexts than in non-migrant households.

Interaction terms in Models 5 and 7 suggest that there are contrasting associations between orphan migration and living standards among adolescents in migrant and non-migrant household contexts. For example, although the interaction terms in Model 5 are not statistically significant, the direction of the coefficients suggest that migrant maternal and double orphans have lower living standards than their non-migrant counterparts among children in non-migrant households. In contrast, one of interaction terms in Model 7 suggest that there is a significant positive association between adolescent migration and living standards among paternal orphans in migrant households. Furthermore, the main and interaction effects in Model 7 suggest that paternal orphans who are non-migrants experience fewer improvements to their living standards than their migrant counterparts within migrant households. In general, therefore, the overall gains to living standards associated with paternal-orphan migration observed in Models 2 and 3 appear to be driven by the outcomes of paternal-orphan migrants who live in migrant rather than non-migrant households.

In Table 3, the analysis examines whether the associations observed between migration and living standards persist within child-headed households. As the results show, the maternal and double-orphan disadvantages found in the baseline model (i.e. Model 1) remain in both migrant (Model 5) and non-migrant (Model 3) household contexts. Accordingly, in terms of orphans' living standards, the buffering socioeconomic influence of migrant-households found in Table 2 does not necessarily apply to migrant households headed by children. Instead, comparisons of the orphan status coefficients in Models 3 and 5 suggest that the

relative size of the orphan disadvantage is greater in child-headed *migrant* than non-migrant households. Contrary to the respective results in Table 2 (Model 7), interaction terms in Model 6 also show no significant positive association between paternal orphan migration and higher living standards in migrant, child-headed households.

Migration and Completed Years of Schooling Among Orphans

Results from the fixed-effects analysis examining schooling disparities, conditional on orphan status are presented in Table 4. Since household-level factors are fixed, schooling differences are assumed to reflect intra-household differences in schooling investments among children in the sample. Coefficients in Table 4 thus show important intra-household variations in adolescent educational attainment. In Model 1, for example, all double-orphans, along with their maternal-orphan counterparts, have a greater comparative schooling disadvantage than paternal orphans, after age and sex are controlled. More importantly, the results reveal a limited correspondence between baseline orphan disparities in living standards found in Table 2, and the respective schooling disparities in Model 1 (i.e. in Table 4). For example, although paternal orphans have the lowest living standards (Table 2, Model 1), Table 4 suggests that households are more likely to invest in their schooling than in the schooling of maternal or double orphans. This finding further suggests that, among orphaned children, household poverty status is less of a barrier to schooling among children with a surviving mother (that is, among paternal orphans), than among those with only surviving fathers or no surviving parent. The results also suggest that the higher comparative living standards of maternal-orphans among orphaned children (Table 2, Model 1), do not appear to result in more relative household investments in their schooling. These discrepancies are, nevertheless, consistent with previous studies showing that fathers' investments in the schooling of their orphaned children (for maternal orphans) are generally very limited (Anderson et al. 1999)

In comparative terms, the schooling disadvantage of maternal and double-orphans increases among children in non-migrant households (Model 4), which closely mirrors the orphan living standards disadvantage observed in these contexts. Despite the relative socioeconomic disadvantage of non-migrant households, however, having a surviving mother continues to provide a significant buffer for the schooling outcomes of paternal orphans in these households. Surprisingly, however, within migrant households, orphans have a consistent schooling disadvantage relative to non-orphans (Model 6), despite the fact that living standards are comparatively higher among maternal and double orphans who live in such contexts (Table 2, Model 6). Seemingly, therefore, the results suggest that orphans' improvements in living standards associated with living in migrant than non-migrant households conceal high levels of intra-household discrimination in schooling investments in favor of non-orphans.

In terms of the relationship between adolescent migration status and orphans' schooling, interaction terms in Model 2 reveal that the positive association between the two is significant only among double-orphans. Specifically, estimates from the main and interaction effects indicate that double-orphan migrants complete slightly more years of schooling than double-orphan non-migrants. Among orphaned children, the magnitude of

the positive association between migration and schooling is also largest among double-orphans, underscoring the proposition that double-orphans experience more gains to schooling as a result of migration, compared to other orphaned children. When additional controls are included to account for children's relationship with household heads, however, the suggested schooling benefit associated with double-orphan migration ceases to be significant (Model 3). Since closeness of biological ties is a key predictor of orphans' schooling (Case et al. 2004) this finding suggests that double-orphan migration only increases schooling when they migrate in order to live with close relatives. In Models 5 and 7, however, the results indicate that there is no significant association between adolescent migration status and orphans' schooling within migrant and non-migrant household contexts.

Finally, in Table 5, the analysis examines the relationship between migration and schooling among children in child-headed households. Few notable schooling differences are found among orphans and non-orphans who live in such household contexts. For example, the schooling attainment levels of maternal and paternal orphans are not significantly different from that of non-orphans (Model 1). Yet, on average, double-orphans complete significantly fewer years of schooling than non-orphans in child-headed households. Additionally, although there are no significant orphan status disparities in child-headed non-migrant households (Model 3), living in child-headed migrant households is associated with considerably lower levels of schooling attainment for maternal and double-orphans (Model 5). In general, the magnitude of the orphan status coefficients suggests that orphans experience a greater schooling disadvantage if they live in migrant than non-migrant, child-headed households. Few differences are also found in the association between adolescent migration status and schooling. Specifically, migrant maternal-orphans have significantly lower levels of schooling than non-migrant maternal-orphans especially among children in non-migrant households. The reverse is also true among paternal-orphan migrants in migrant households. Thus, although living in child-headed migrant households is negatively associated with orphans' schooling, paternal-orphan migrants seem more able to circumvent the schooling disadvantages of such household contexts relative to other orphan migrants.

Conclusions

Missing from the growing literature on the migration of orphans are studies systematically interrogating the relationship between orphan migration and objective improvements in their well-being. A major contribution of this study, therefore, is that it addresses some of these gaps and situates the broader discourse on these relationships within the household context. Given the lack of more appropriate data in the Rwanda context, the analysis has relied on cross-sectional data to identify critical associations between orphan status and child well-being. The use of cross-sectional data thus imposes constraints on the extent to which causal inferences can be derived from the analysis. Yet, emerging from these analyses are important associations suggesting that the relationship between migration and orphan well-being is generally circumscribed by the contextual characteristics of households. In the process, the analysis has provided four major insights that represent important contributions to research and policy discourses.

First, although the results confirm previous findings that orphans are more likely to migrate than non-orphans (Masmas et al. 2004, Urassaa et al. 1997), they also reveal disparities in the likelihood of orphan migration that are conditional on orphan type. Specifically, double-orphans are the most likely to migrate among orphans (Table 1) and are closely followed by their maternal-orphan counterparts. Several implications are associated with differences findings. One of these is that the likelihood of orphan migration is positively associated with orphans' number of dead parents. Moreover, among single-parent orphans, the loss of a father appears to increase the likelihood of orphan migration more than the loss of a mother. The analysis also shows that orphan migration does not occur within a social institutional vacuum. Regardless of orphan type, orphans who migrate tend to live in migrant than in non-migrant households and these disparities create additional implications for their socioeconomic well-being.

Second, the study confirms the hypothesis that migration is associated with improvements in orphans' household living arrangements. On one level, the findings indicate that migrant-households provide less adverse living arrangements (for example, living in single-parent households) for orphans than non-migrant households. In addition, the evidence shows similar associations at the individual-level for orphans who migrate. For these orphans, migration is also associated with a lower risk of living with non-related rather than related family members who may be less concerned about their socioeconomic welfare. As a social process, therefore, orphan migration tends to redistribute orphaned populations in ways that maximize their chances of living in more altruistic contexts. In fact, this altruistic nexus appears to drive the migration of single-parent orphans (paternal and maternal orphans) as they are more likely to live with their own parents, than non-parents, on arrival at their destination areas (Table 1).

A third insight provided by the study is that regardless of adolescent migration status, schooling and living standards disparities among orphans vary within migrant and non-migrant household contexts. However, orphans are less disadvantaged in terms of living standards in the former than in the latter. One implication of this finding is that because most orphan migrants live in migrant households (Table 1), orphan migration may result in a net positive change in living standards relative to non-migration. Yet instructively, the presumed socioeconomic advantage associated with orphan residence in migrant households seems critically unmatched by migrant households' investments in their schooling. In particular, the study finds considerable empirical disconnections between orphans' relative living standards (Table 2, Model 6) and their schooling outcomes (Table 4, Model 6) within migrant household contexts. Likewise, interaction terms examining schooling differences among migrant and non-migrant orphans showed no evidence of possible schooling gains among the former relative to the latter within migrant households. In combination, these findings imply that although migrant households are able to meet the immediate subsistence needs of orphans, their stake in the long-term development of orphaned children, reflected in their intra-household schooling differences, may be limited.

Finally, the study enhances our understanding of the negative relationship that exists between adolescent well-being and residence in child-headed household contexts. First, it suggests that even within these contexts, the negative socioeconomic outcomes of children

are more adverse for orphans than non-orphans. Second, and contrary to expectations, the living standards buffer associated with orphan residence in migrant households does not extend to migrant-households headed by children. At the same time, although all orphans who migrate generally have higher living standards than non-migrant orphans (Table 2, Model 3), migrant orphans neither have significantly higher living standards (Table 3, Model 2) nor better schooling outcomes (Table 5, Model 2) than non-migrant orphans among adolescents in child-headed households.

These findings have a number of research and policy implications. In terms of policy, the analysis clearly underscores the need for increased focus on the welfare of orphans in child-headed households. For example, the findings suggest that orphans in child-headed household face greater constraints to human development than orphans living in other household contexts. Furthermore, improvements in socioeconomic circumstances associated with orphan migration do not discount the need for additional policy attention to the schooling outcomes of migrant orphans. In the Rwandan case, for example, policies providing educational support to migrant orphans as well as other orphans in wealthy households may still be needed despite their more favorable household socioeconomic circumstances. At the same time, more research is needed to bring clarity to specific issues associated with the dynamics of orphan migration. Migrant orphans who move across multiple destinations, for example, may be better able to change their socioeconomic circumstances or schooling outcomes in the face of structural barriers to their welfare. Differences may also exist between the outcomes of adolescent migrants orphaned by genocide and those orphaned by HIV/AIDS. Data limitations in the census sample however limit the extent to which these issues can be examined. Nevertheless, the study's insights provide a useful basis for advancing research on the relationship between migration and orphan well-being in African countries.

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Table 1

Percentage distribution of selected characteristics of orphans and non-orphans in migrant and non-migrant households

	Non-orphans	Paternal	Maternal	Double
Non-Migrant households				
Female-headed household	22.8	89.8 [*]	24.9 [*]	51.0 [*]
Single-parent household	25.5	92.4 [*]	66.1 [*]	75.3 [*]
Child-headed household	1.0	1.8 [*]	14.8 [*]	27.7 [*]
Household size	6.97	5.48 [*]	5.50 [*]	4.99 [*]
H. Head with at least complete secondary education	0.4	0.5	0.9 [*]	1.8 [*]
Adolescent migrants	1.5	2.8 [*]	3.2 [*]	6.5 [*]
Adolescent migrants' relationship with H. head				
Child	30.2	33.6	17.3 [*]	—
Grand child	19.4	21.7	21.6	24.3 [*]
Sibling	2.7	3.7	4.3	4.1
Non-relative	35.9	24.5 [*]	35.6	28.4 [*]
Other relationships	11.7	16.6 [*]	21.1 [*]	43.1 [*]
<i>N</i>	44,920	20,750	5,814	7,069
Migrant households				
Female-headed households	21.0 [†]	82.3 ^{*†}	19.0 ^{*†}	42.4 ^{*†}
Single-parent household	23.8 [†]	85.3 ^{*†}	43.2 ^{*†}	53.2 ^{*†}
Child-headed household	0.9 [†]	1.3 ^{*†}	3.7 ^{*†}	7.1 ^{*†}
Household size	7.3 [†]	5.9 ^{*†}	6.5 ^{*†}	6.6 ^{*†}
H. Head with at least complete secondary education	5.0 [†]	4.1 [*]	6.7 ^{*†}	11.1 ^{*†}
Adolescent migrants	44.4 [†]	45.3 [†]	56.0 ^{*†}	67.4 ^{*†}
Adolescent migrants' relationships with H. head				
Child	78.0 [†]	61.1 ^{*†}	47.0 ^{*†}	—
Grand child	3.6 [†]	5.9 ^{*†}	7.1 ^{*†}	16.7 ^{*†}
Sibling	2.5	3.5 [*]	7.9 [*]	18.5 ^{*†}
Non-relative	8.4 [†]	13.8 ^{*†}	18.9 ^{*†}	21.1 ^{*†}
Other relationships	7.4 [†]	15.7 [*]	19.1 [*]	43.6 [*]
<i>N</i>	29,969	13,919	3,087	4,610

^{*} $p < 0.05$ compared to non-orphans within migrant or non-migrant households

[†] $p < 0.05$ compared to non-migrant households within orphan-status type

Table 2

OLS regression coefficients showing predictors of the association between living standards and orphan status among Rwandan adolescents

	All households			Non-migrant households			Migrant households		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7		
Non-orphans (reference)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)		
Maternal orphans	-0.03***	0.03***	0.00	-0.05***	0.01	0.03*	-0.01		
Paternal orphans	-0.11***	-0.02***	-0.04***	-0.16***	-0.03***	-0.08***	-0.05***		
Double orphans	0.01	0.04***	-0.04***	-0.06***	-0.02*	0.11***	-0.03		
Age	0.01***	0.01***	0.01***	0.01***	0.01***	0.01***	0.01***		
Sex (male = 1)	0.01**	0.02***	0.02***	0.02***	0.02***	0	0.01**		
Adolescent migrant (yes = 1)		0.12***	0.09***		0.11***		0.08***		
Maternal orphan × migrant		0.01	0.00		-0.09		0.00		
Paternal orphan × migrant		0.07***	0.05***		0.06		0.05***		
Double orphan × migrant		0.03*	0.03*		-0.02		-0.01		
Migrant households (yes = 1)		0.05***	0.06***						
Child headed households (yes = 1)		-0.03***	-0.11***		-0.15***		0.04**		
Single-parent household (yes = 1)		-0.10***	-0.09***		-0.10***		-0.07***		
Household size		0.03***	0.03***		0.03***		0.03***		
Place of residence (urban = 1)		0.29***	0.26***		0.17***		0.32***		
Relationships with household head									
Child (reference)			(0.00)		(0.00)		(0.00)		
Grandchild			-0.01*		-0.02		-0.02		
Sibling			0.10***		0.08***		0.14***		
Unrelated			0.27***		0.27***		0.25***		
Other			0.13***		0.13***		0.13***		
Constant	0.82***	0.59***	0.34***	0.79***	0.41***	0.87***	0.38***		
N	130,138	130,138	130,138	78,553	78,553	51,585	51,585		

*
p < 0.05;

1000 > p

 ;101 > p

 *

Table 3

OLS regression coefficients showing predictors of the association between living standards and orphan status in child-headed households

	All households			Non-migrant households			Migrant households		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 5	Model 6	Model 6
Non-orphans (reference)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Maternal orphans	-0.22***	-0.07	-0.12**	-0.06	-0.25**	-0.06	-0.25**	-0.06	-0.06
Paternal orphans	-0.05	-0.03	-0.04	-0.02	-0.02	-0.13	-0.02	-0.13	-0.13
Double orphans	-0.24***	-0.11***	-0.14***	-0.10*	-0.27***	-0.07	-0.27***	-0.07	-0.07
Age	0.02***	0.02***	0.01*	0.02**	0.03*	0.01	0.03*	0.01	0.01
Sex (male = 1)	0.08***	0.05**	0.03	0.03	0.22***	0.06*	0.22***	0.06*	0.06*
Adolescent migrant (yes = 1)		0.25***		-0.01		0.25*			
Maternal orphan × migrant		-0.09		0.40		-0.1			
Paternal orphan × migrant		0.04		-0.03		0.13			
Double orphan × migrant		-0.08		0.11		-0.11			
Migrant household (yes = 1)		0.04							
Single-parent household (yes = 1)		-0.05		-0.12***		0.12*			
Household size		0.01		0.02		0			
Place of residence (urban = 1)		0.30***		0.20***		0.45***			
Relationship with household head									
Sibling (reference)		(0.00)		(0.00)		(0.00)			
Unrelated		0.26***		0.25**		0.24			
Other		-0.01		-0.02		0.04			
Constant	0.64**	0.20***	0.630**	0.36**	0.715***	0.08***	0.715***	0.08***	0.08***
N	4,536	4,536	3,652	3,652	884	884	884	884	884

* $p < 0.05$;

** $p < 0.01$;

*** $p < 0.001$

Table 4

Results from the fixed-effects regression analysis of the predictors of schooling differences among Rwandan adolescents

	All households			Non-migrant households			Migrant households		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7		
Non-orphans (reference)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)		
Maternal orphans	-0.72***	-0.75***	-0.30***	-0.80***	-0.34***	-0.64***	-0.22		
Paternal orphans	-0.34***	-0.32***	-0.05	-0.28***	-0.02	-0.40***	-0.10		
Double orphans	-0.78***	-0.85***	0.11	-0.85***	0.10	-0.72***	0.17		
Age	0.29***	0.29***	0.29***	0.27***	0.27***	0.31***	0.32***		
Sex (male = 1)	-0.02	-0.02	-0.01	-0.03	-0.01	0.01	-0.01		
Adolescent migrant (yes = 1)		-0.75***	-0.18**		-0.39***		-0.14		
Maternal orphan × migrant		0.14	0.20		0.40		0.10		
Paternal orphan × migrant		-0.01	0.14		0.26		0.17		
Double orphan × migrant		0.35***	0.11		0.13		0.05		
Relationship with household head									
Child (reference)			(0.00)		(0.00)		(0.00)		
Grandchild			-0.86***		-0.75***		-1.0***		
Sibling			-0.75***		-0.92***		-0.58***		
Unrelated			-2.97***		-2.88***		-3.04***		
Other			-1.10***		-1.16***		-1.07***		
Constant	-0.76***	-0.68***	-0.65***	-0.63***	-0.54***	-0.95***	-0.84***		
Rho	0.59	0.6	0.63	0.59	0.61	0.6	0.64		
N	127,243	127,243	127,243	76,793	76,793	50,450	50,450		

* $p < 0.05$;** $p < 0.01$;*** $p < 0.001$

Table 5

Results from the fixed-effects regression analysis of the predictors of schooling differences among Rwandan adolescents living in child-headed households

	All households		Non-migrant households		Migrant households	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Non-orphans (reference)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Maternal orphans	-0.51	0.01	-0.01	0.27	-1.40***	-2.85*
Paternal orphans	0.15	0.12	0.25	0.48	-0.8	-2.53*
Double orphans	-0.59*	-0.51	-0.41	-0.32	-0.87*	-2.01*
Age	0.22***	0.23***	0.22***	0.22***	0.20**	0.26***
Sex (male = 1)	0.20***	0.19*	0.20*	0.19*	0.22	-0.09
Adolescent migrant (yes = 1)	0.31			1.35		-1.42
Maternal orphan × migrant	-1.57**			-3.50**		1.62
Paternal orphan × migrant	-0.60			-2.13		2.11*
Double orphan × migrant	-0.40			-1.53		1.26
Relationship with household head						
Sibling (reference)	(0.00)			(0.00)		(0.00)
Unrelated	-0.77**			-0.92*		-0.95*
Other	-0.15			-0.07		-0.71*
Constant	-0.29	-0.16	-0.65	-0.37	0.53	1.60
Rho	0.64	0.65	0.63	0.64	0.66	0.67
N	4,426	4,426	3,567	3,567	859	859

* $p < 0.05$;

**

$p < 0.01$;

$p < 0.001$