



HHS Public Access

Author manuscript

Demography. Author manuscript; available in PMC 2017 December 01.

Published in final edited form as:

Demography. 2016 December ; 53(6): 1743–1770. doi:10.1007/s13524-016-0521-7.

Parental Divorce and Children’s Schooling in Rural Malawi

Sophia Chae¹

Sophia Chae: schae@gutmacher.org

¹Gutmacher Institute, 125 Maiden Lane, New York, NY 10038, USA

Abstract

A growing body of literature has examined the impact of different types of family structures on children’s schooling in sub-Saharan Africa. These studies have investigated how living arrangements, gender of the household head, parental death, and paternal migration are related to schooling. Although many sub-Saharan African countries have high divorce rates, very few studies have explored the impact of parental divorce on children’s schooling. The present study uses three waves of data from the Malawi Longitudinal Study of Families and Health (MLSFH) to investigate the effect of parental divorce on children’s schooling and the possible mechanisms driving this relationship. Unlike prior studies, this study uses child-level fixed-effects models to control for selection into divorce. Results show that parental divorce is associated with lower grade attainment and a larger schooling gap, defined as the number of years a child is behind in school (among children currently attending school). Although no association exists between parental divorce and current school attendance, girls affected by divorce are significantly less likely to be attending school. Differences in economic resources, maternal coresidence, or maternal psychological well-being do not explain the relationship between parental divorce and children’s schooling.

Keywords

Divorce; Child well-being; Schooling; Family structures; Malawi

Introduction

In sub-Saharan Africa, children live in a wide variety of family structures, including (but not limited to) two-parent households, female-headed households, and polygynous households. The types of family structures that children live in influence their access to economic, social, and emotional resources, which in turn affect their well-being, including that of schooling. Because of the important role that family structures play in children’s schooling, a growing body of literature has investigated this relationship in the context of sub-Saharan Africa. Many of these studies have focused on children’s living arrangements, examining whether living with both parents produces better schooling outcomes than living with one or neither parent. In rural South Africa, Townsend et al. (2002) showed that children living with both biological parents have higher educational attainment than those living with one or neither biological parent. Studies have also examined whether the gender of the household head is important for children’s schooling. Children living in female-headed households have higher

levels of current school enrollment and better schooling progress than children in male-headed households (Kyei 2010; Lloyd and Blanc 1996; Townsend et al. 2002).

Other studies have explored the reasons behind parental absence (such as paternal migration and parental death) and its relationship with children's schooling. In Mozambique and South Africa, children with migrant fathers have better schooling outcomes than those with nonmigrant fathers (Yabiku and Agadjanian 2013; Yao and Treiman 2011), a relationship that is largely attributed to migrant fathers sending remittances to their families, which are then invested in children's schooling. Recently, high adult mortality rates associated with the HIV/AIDS epidemic triggered interest in the impact of parental death on children's schooling. Although results have been mixed, many of these studies have demonstrated a negative association (Ardington and Leibbrandt 2010; Beegle et al. 2010; Case and Ardington 2006; Case et al. 2004; Evans and Miguel 2007; Timaeus and Boler 2007).

Largely absent from this body of literature are studies examining family structures affected by parental divorce. In many parts of sub-Saharan Africa, divorce rates are high (Arnaldo 2004; Clark and Brauner-Otto 2015; Reniers 2003; Takyi and Gyimah 2007; Tilson and Larsen 2000). In a cross-national study of 33 African countries, Clark and Brauner-Otto (2015) estimated that approximately one-quarter of first unions ended in divorce within 20 years of marriage. The proportion of first unions ending in divorce varied widely by country, ranging from 6.9 % in Mali to 47.1 % in Congo (Brazzaville). Despite high divorce rates, very few studies have examined the effect of parental divorce on children's schooling. Oya and Sender (2009) calculated that children of currently divorced or separated Mozambican women have completed more grades of schooling than children of nondivorced/nonseparated women. This study, though, interviewed only currently employed women, limiting the applicability of its findings, and did not use multivariate regression to control for confounding factors, such as mother's education and income. In a study of 5- to 10-year-old children in Burkina Faso, Thiombiano et al. (2013) showed that recent parental divorce (i.e., within the past two years) reduced the odds of starting primary school. In Malawi, Carling and Tonnessen (2013) demonstrated that parental divorce is negatively associated with current school attendance.

Similar to prior studies, the present study investigates the impact of parental divorce on children's schooling. It builds on the literature by using child-level fixed-effects models to control for unobserved heterogeneity that could affect both parental divorce and children's schooling (Allison 2009). Parents, for example, may have personality characteristics and/or parenting behaviors that lead to divorce and poorer schooling outcomes. Using data from the Malawi Longitudinal Study of Families and Health (MLSFH), this study finds that parental divorce has a negative effect on children's schooling and that this relationship is not explained by differences in economic resources, maternal coresidence, or maternal psychological well-being.

Mechanisms Linking Parental Divorce and Children's Schooling

Despite the high prevalence of divorce in sub-Saharan Africa, the literature on parental divorce and children's schooling remains scant. Findings from the few studies conducted in

this region are consistent with conclusions reached in Western countries: parental divorce is negatively associated with children's schooling (Amato 2001; Frisco et al. 2007; McLanahan and Sandefur 1994; Sun and Li 2002). Studies in Western countries have proposed several different perspectives to explain this relationship. Although family structures in sub-Saharan Africa place a greater emphasis on extended family ties (Foster 2000; Verhoef 2005), these perspectives may still apply. One of the dominant perspectives in the literature is the *divorce-stress-adjustment perspective*, which holds that the divorce process produces stressors that increase the risk of adverse child outcomes (Amato 2000; Sun and Li 2002). The types of stressors vary throughout the divorce process.

Loss of economic resources is one type of stressor that has been frequently studied in Western countries (Carlson and Corcoran 2001; Thomson et al. 1994). After parental divorce, children's access to economic resources is often reduced (McLanahan and Sandefur 1994; Page and Stevens 2004). Poorer households may be unable to afford children's school fees, school uniforms, or books. Consequently, younger children may experience delayed school enrollment, and older children may drop out of school temporarily or even permanently to take care of younger children or seek employment. Evidence from Malawi has indicated that the relationship between parental divorce and children's school enrollment is mediated by household wealth (Carling and Tonnessen 2013).

In the United States, the majority of children reside with their mother following a divorce (Kelly 2007), and oftentimes they move to a new neighborhood and school district. Such a move can be disruptive, forcing children not only to cope with their parents' divorce but also to adjust to new surroundings, including new schools and social networks. The disruption of household living arrangements can negatively affect child well-being (Brown 2004; Magnuson and Berger 2009; Peterson and Zill 1986; Thomson et al. 1994). Although moving can be disruptive, continued maternal coresidence may buffer against the negative effects of divorce. In sub-Saharan Africa, children living in female-headed households have better schooling outcomes than children living in male-headed households (Kyei 2010; Lloyd and Blanc 1996; Townsend et al. 2002). One explanation is that mothers are better at finding the resources to pay for children's school fees, school uniforms, and books, and ensuring that children attend and remain in school.

The divorce process may also produce stressors that reduce parental supervision and effective control of children. Divorced individuals suffer from higher levels of psychological distress than married individuals (Demo and Acock 1996; McLoyd 1990). Reasons for this distress include coping with the actual divorce, taking care of children as a single parent, and dealing with the economic strains (Conger et al. 1992). Divorced parents may feel increased stress, which may affect their ability to provide adequate care for their children and raise their children's risk of experiencing behavioral problems (Carlson and Corcoran 2001; McLanahan and Sandefur 1994). Stressed parents may not be aware that their children are not attending school, doing their homework, or performing well in school. Lack of parental attention, as a result of psychological distress, could lead to children dropping out or falling behind in school.

Study Context: Rural Malawi

Malawi, one of the poorest and least-developed countries in the world, is ranked 173 of 188 countries in its level of development (UNDP 2015). In 2014, gross national income (GNI) per capita (2011 PPP \$) was \$747, and life expectancy at birth was 63 years (UNDP 2015). Although Malawi is substantially poorer than most African countries, its life expectancy is higher than average for the region. Like many East African countries, Malawi has been particularly hard-hit by the HIV/AIDS epidemic. In 2012, estimated HIV prevalence was 10.8 % among 15- to 49-year-olds, more than double the average prevalence for sub-Saharan Africa (4.4 %) (UNAIDS 2013).

Marriage and Divorce

In Malawi, marriage is almost universal. The median age at first marriage is 17.8 years for women and 22.6 years for men (National Statistical Office and ICF Macro 2011). By age 30, most Malawians have been married at least once. Malawian marriages are quite unstable. Clark and Brauner-Otto (2015) estimated that more than one-third of first unions end in divorce within 20 years of marriage. Marital instability, is not a recent phenomenon; it was a feature of family life in Malawi throughout much of the twentieth century (Kaler 2001; Mitchell 1956; Reniers 2003; Tew 1950; Vaughan 1983). More recently, the AIDS epidemic may have exacerbated marital stability because individuals use divorce as a strategy to reduce their own risk of HIV infection (Grant and Soler-Hampejsek 2014; Reniers 2008; Smith and Watkins 2005).

The present study uses data collected in rural areas of Malawi, specifically in the districts of Rumphu (north), Mchinji (central), and Balaka (south). In this setting, the probability of divorce is high: approximately 40 % to 65 % of women will experience a divorce at some point in their lives (Reniers 2003). Regional variation exists in the probability of divorce, and likely stems from differences in marriage, lineage, and residence customs.

In the north, the Tumbuka are the dominant ethnic group and are largely patrilineal, with most couples living with or near the husband's family after marriage. Divorce probabilities are lowest in this region: 14 % and 40 % of first marriages end in divorce after 5 and 25 years, respectively (Reniers 2003).

In the south, the Yao are the dominant ethnic group and are primarily matrilineal, with most couples living with or near the wife's family after marriage. Divorce probabilities are highest in this region: 33 % and 65 % of first marriages end in divorce after 5 and 25 years, respectively (Reniers 2003).

In the central region, the Chewa are the dominant ethnic group. Traditionally, the Chewa followed a matrilineal kinship structure with most couples living with or near the wife's family after marriage. The growing scarcity of land altered this practice as the local population began adopting patrilineal kinship structures and virilocal residence after marriage to secure land rights (Takane 2008). Patrilineal and matrilineal kinship structures in this region are now mixed, with couples residing with either the husband's or the wife's

family after marriage. Divorce probabilities lie between those of the north and south: 20 % and 40 % of first marriages end in divorce after 5 and 25 years, respectively (Reniers 2003).

In Malawi, remarriage after divorce is common and occurs relatively quickly, with most individuals remarrying within a few years (Reniers 2003). Within two years of divorce, 40 % of women remarry. The proportion increases to 75 % and 90 % within five and 10 years of divorce, respectively. Similar to divorce, remarriage probabilities also vary by region. Remarriage occurs more quickly in the central and southern regions, where 90 % of divorced women eventually remarry; in the north, only 78 % do.

Traditionally, kinship structures exert a strong influence on the custody arrangements of children following a divorce. Among patrilineal ethnic groups, such as the Tumbuka, customary law dictates that children belong to the father's lineage. Children are financially supported and remain in the custody of the father or his family. In some cases, mothers maintain custody of young children. Similarly, among matrilineal ethnic groups, such as the Yao, children belong to the mother's family and are financially supported and live with the mother or her family following a divorce (Peters 1997). If the mother remarries, the child may live with another family member to reduce the risk of potential conflicts with the new spouse. Custody arrangements are not always settled according to customary law and are sometimes settled in an official court of law. The Malawian judicial system does its best to respect customary law but sometimes makes rulings superseding it if doing so is in the best interests of the child (Mwambene 2012). Despite the influence of kinship structures on custody arrangements, Grant and Yeatman (2014) found that the majority of children in the study setting continued to reside with their mother following a divorce and that maternal remarriage was the precipitating factor leading children to live apart. Nonetheless, this event was still quite rare: only 13 % of children lived apart from their mothers after remarriage.

Education

Malawi's education system consists of eight grades of primary school (Standard 1–8) and four grades of secondary school (Form 1–4). For every 1,000 children who enter primary school, fewer than one-half complete primary school, and only 40 finish secondary school (Frye 2012). Although most children attend primary school for at least a few years (National Statistical Office and ICF Macro 2011), many barriers prevent school completion, including financial and opportunity costs, age/grade placement imbalance and grade repetition, temporarily dropping out of school, and low quality of education.

Financial reasons are one barrier to school completion. In 1994, the government of Malawi abolished primary school fees in an effort to provide universal access to primary education. Despite the elimination of fees, parents must still purchase school supplies and uniforms for their children (Kadzamira and Rose 2003). These costs are not nominal and increase as a child progresses in school. In fact, school-related expenditures are 50 % higher for a child in Standard 4–8 than for a child in Standard 1–4 (Rose 2002). For some parents, these expenses are too high, leaving them no choice but to withdraw their children from school. Financial reasons become an even greater barrier when children reach secondary school, for which school fees increase substantially.¹

The opportunity costs of school attendance serve as another barrier to school completion. The short-term prospects of increased household income from children engaging in paid labor may outweigh any potential long-term benefits of school attendance. Further, the AIDS epidemic may have exacerbated the needs of families to have children engage in unpaid work. Following the death of a parent or other relative, older children—especially girls—may be needed to take care of younger children, tend to the needs of sick relatives, and perform household chores (Ansell and van Blerk; Mojola 2011).

Although most Malawian children attend school, at least until their early adolescent years (Grant 2008), many are not in the appropriate grade for their age (Mensch et al. 2014; World Bank 2010). One contributing factor is delayed school entry. In Malawi, the official school starting age is 6, although many children do not enroll in school until much later (Kadzamira and Rose 2003). Furthermore, grade repetition contributes to children not being in the appropriate grade for their age (World Bank 2010), perhaps because of other extenuating circumstances. Some children, for example, may not attend school daily because parents need them to engage in occasional wage labor, or the children suffer from poor nutrition or inadequate calorie intake that adversely affects their ability to learn.

Temporary school dropout could also affect children's progress in school. Children may withdraw from school temporarily because of parental inability to pay for school fees or school-related expenses, they are needed for paid or unpaid labor, or they experience a change in life circumstances, such as a parental death or divorce.

The elimination of primary school fees in 1994 dramatically increased enrollment rates (Al-Samarrai and Zaman 2007) but had the unfortunate consequence of decreasing the quality of education provided (Kadzamira and Rose 2003; Kendall 2007). To keep pace with the surge in demand for schooling, the government of Malawi hired an additional 18,000 teachers, most of whom were unqualified (Al-Samarrai and Zaman 2007; Kunje 2002). The supply of schools and classrooms, moreover, did not increase proportionately to match the rapidly growing number of children seeking an education, resulting in large class sizes (Kadzamira and Rose 2003; Kendall 2007). Thus, many children failed to acquire the necessary knowledge and skills for grade promotion (Kadzamira and Rose 2003; Kendall 2007).

Selection Into Divorce

Studies from Western countries have largely shown that parental divorce is negatively associated with children's schooling (Amato 2001; Frisco et al. 2007; McLanahan and Sandefur 1994; Sun and Li 2002). Whether this relationship is due to a causal effect of parental divorce (Amato 2010; McLanahan et al. 2013) or to unobserved characteristics increasing both the risk of divorce and poorer schooling outcomes is still being debated. Proponents of the latter view question whether individuals who select into divorce are inherently different from those who remain married (Amato 2000; Capaldi and Patterson 1991) and suggest that they may differ on personality characteristics, parenting skills,

¹Although school fees have the potential to affect decisions regarding secondary school enrollment, this is not an issue in this study because most secondary school-aged children have not yet completed primary school. In the analytic sample, only 13 % of 15-year-old-children have completed eight or more grades of schooling and are eligible to attend secondary school.

predivorce marital discord, and genetic influence. Such differences could increase their risk of divorce as well as negatively affect their child's well-being. The divorce itself may not be the cause of poorer child outcomes. Rather, unobserved heterogeneity may confound this association. A handful of studies conducted in sub-Saharan Africa have shown that parental divorce is negatively associated with child outcomes, including child mortality, health, and nonattendance in school (Carling and Tonnessen 2013; Clark and Hamplova 2013; Gnomou Thiombiano et al. 2013). It remains unknown whether these associations are due to a causal effect of parental divorce or selection into divorce. The advantage of the present study is its use of child-level fixed-effects models to control for selection into divorce. In these models, each child serves as his or her own control, which controls for all time-invariant variables, both observed and unobserved. This statistical method can provide evidence of the existence of a causal effect of divorce on children's schooling.

Data

The present study uses data from the Malawi Longitudinal Study of Families and Health (MLSFH), formerly known as the Malawi Diffusion and Ideational Change Project (MDICP), to investigate the relationship between parental divorce and children's schooling. The MLSFH is a panel survey that interviews men and women in rural areas of three districts in different regions of Malawi: Rumphu (north), Mchinji (central), and Balaka (south). The first wave of data collection began in 1998 with interviews of 1,541 ever-married women aged 15–49, and 1,065 of their husbands. In 2001, the MLSFH reinterviewed these respondents as well as all new spouses of men and women who remarried during the intersurvey period. In 2004, the original sample and their new spouses were reinterviewed, along with a sample of approximately 1,000 adolescents aged 15–24. In 2006, 2008, and 2010, all respondents from previous waves were reinterviewed, along with new spouses of respondents. The 2008 wave also added a sample of approximately 800 parents of MLSFH respondents. This study focuses on data collected from women in the 2006, 2008, and 2010 waves of the MLSFH because information on all biological children of respondents, regardless of the child's usual place of residence, were collected.

Table 1 outlines the steps taken to obtain the analytic sample used in this study. First, the analytic sample was restricted to living biological children who are listed in women's household rosters in at least two consecutive survey waves, are in the appropriate age range (6–15 years in 2006, 6–17 years in 2008, and 8–17 years in 2010), and have mothers who participated in the main survey questionnaire.² This study focuses on children aged 6–17 because children in this age range should be attending school. The MLSFH collected information on biological children in 2006, 2008, and 2010; this information, however, was not automatically linked across survey waves. Instead, children were manually linked on a case-by-case basis. Because names are often spelled differently (mostly due to the interpretation of the interviewer) and parents do not always report the same first names,³ a computerized algorithm did not create these linkages. Rather, the child's name, gender, and

²In 2006, the survey consisted of three questionnaires (family listing, main survey, and biomarker) that were fielded by three survey teams. In 2008, the family listing and main survey questionnaires were combined into a single questionnaire, and the biomarker questionnaire was fielded separately. In 2010, only the family listing/main survey questionnaire was fielded.

age were used to verify that a child listed in the earlier household roster was the same child listed in the later household roster. The quality of each linkage was assessed and given a score of low, medium, or high. Only children with medium- or high-quality linkages were kept in the analytic sample. Some children were not linked across survey waves because mothers did not report them in the later wave, they died between survey waves, or discrepancies on key characteristics were too great to confirm a match.

Next, I restricted the analytic sample to children whose mothers have reconstructed marriage history data. Prior research has shown that some men and women underreport marriages and divorces when asked to retrospectively report them in surveys (Chae 2016). This poses a potential problem because this study relies on women's reports of marriages and divorces in retrospective marriage histories to determine whether a child's parents are divorced. Marriage omission could result in two types of errors: a child incorrectly coded as coming from a specific marriage, and/or the parents' marriage status incorrectly coded. To minimize this problem, I reconstructed marriage histories for women who were interviewed in 2006, 2008, and 2010. The algorithm used to reconstruct marriage histories is outlined elsewhere (Chae 2016).

Reconstructed marriage history data were used to determine whether a child has divorced parents. First, I compared the child's year of birth with the marriage start and end dates (in cases of terminated marriages) to determine which of the mother's marriages a child comes from (first marriage, second marriage, and so on). If the child's year of birth was between the marriage start and end dates, inclusive of these dates, the child was coded as coming from this marriage. If the child's year of birth was after the marriage start date and the marriage is still ongoing, the child was coded as coming from this marriage. A small proportion of children whose year of birth is earlier than the mother's first marriage start date were coded as premarital births. Children for whom I could not determine which marriage they came from were coded as indeterminate. For all other children, I used the status of marriage listed in the reconstructed marriage history to code their parents' marriage status (still married, divorced,⁴ or widowed). Table 1 shows that approximately three-quarters of children have parents who were still married to each other at the time of the survey. Children with divorced parents make up the second-largest category (11 % to 14 %), followed by children with widowed mothers. Given that this study aims to examine the effect of parental divorce on children's schooling, I further restricted the analytic sample to children with married or divorced parents. I did not include children from other categories because of relatively small numbers. As a last step, I excluded children with missing data on one or more of the dependent or independent variables, resulting in an analytic sample of 1,954 children (2006: 1,222 children; 2008: 1,954 children; and 2010: 1,566 children).

³In Malawi, it is not uncommon for individuals to change names or report different names across survey waves (adams et al. 2013). Women may change their name upon marriage, taking their husband's first or last name, or parents may change their child's name to that of a relative who passed away. Furthermore, some people may have multiple nicknames used in different contexts or different names in different languages. Because of the fluidity of naming patterns, respondents may not consistently report the same names across survey waves.

⁴Because of the small number of separations reported by women, I combined separations and divorces into the same category.

Table 2 compares characteristics of children in the analytic sample and the cross-sectional sample, as measured in 2008. Current school attendance is the only dependent variable that differs significantly between the two samples: 86 % of children in the analytic sample versus 83 % in the cross-sectional sample were attending school. The percentage of children with divorced parents is 4 percentage points higher in the cross-sectional sample than in the analytic sample. This significant difference is likely due to divorced mothers migrating out of the survey area (Anglewicz 2012). Children with divorced mothers who migrated out of the study area are not captured in this study, potentially biasing results if they differ from children with divorced mothers who remain in the study area. If vulnerable mothers were more likely to migrate, this study would underestimate the effect of divorce. Although several significant differences are observed between the two samples, they are primarily due to sample selection: children with married parents are more likely to remain in the analytic sample.

Dependent Variables

The MLSFH collected data on children's schooling as part of its household rosters. For each child, respondents reported the highest level of schooling attended, indicating whether the child was currently attending school or had finished school, and the number of grades of schooling completed at that level. This information was used to construct three schooling outcomes measuring different aspects of schooling. The first outcome—current school attendance—measures a recent decision by both parents (or one parent, if a single-parent household) to keep a child in school. The second outcome—grade attainment—measures a child's cumulative schooling attainment. This measure is affected by a number of factors (including delayed school entry, temporary school dropout, and grade repetition) and is measured for all children regardless of current school attendance. Grade attainment is equal to the number of grades of schooling that a child reportedly completed.⁵ Between survey waves, children should have completed 0, 1, or 2 grades of schooling. Tabulations of changes in grade attainment, however, indicate that some gains were negative or greater than 2. Because it is not uncommon for children to repeat a previous grade or to skip a grade, I kept children who had experienced a -1 or +3 change in grade attainment during the intersurvey period and excluded children who had reported gains of +3 or <-1.⁶ Thus, children in the analytic sample could have repeated the prior grade, stayed in the same grade, or completed 1–3 grades of additional schooling between survey waves.

The last outcome—schooling gap—is measured among children currently in school in each survey wave and reflects their progress in school. As discussed earlier, Malawian children often experience delayed school entry, drop out of school temporarily, and/or repeat several grades, resulting in a significant proportion of children not being in the appropriate grade for their age (Mensch et al. 2014; World Bank 2010). The schooling gap is equal to the difference between the expected number of grades completed for the child's age and the actual number of grades completed. For example, a 10-year-old child should have completed

⁵An initial tabulation of grade attainment by age indicated that some children had been reported to have higher grade attainment than is appropriate for their age. I dropped 95 children who were reported to have three or more grades of schooling more than is appropriate for their age.

⁶During the 2006–2008 period, 67 children were dropped; during the 2008–2010 period, 79 children were dropped.

4 grades of schooling. If that child completed 2 grades of schooling, the child's schooling gap is +2. A positive gap indicates that a child is not in the appropriate grade for his or her age, and a gap of 0 implies that a child is in the appropriate grade. A negative gap is possible and is likely due to children starting school before age 6.

Independent Variables

The key predictor variable—divorced parents—is time-varying and measures whether a child has divorced parents. In regression models, I included a set of time-varying control variables that are known to influence schooling outcomes. Because I used a child-level fixed-effects approach (see the Analytic Strategy section for further explanation), I did not include time-constant variables in models. Child-level control variables included age and general health status. Because parental divorce may have a differential effect on schooling by age, I coded age into three categories: 6–9, 10–13, and 14–17. General health status, as reported by the mother, was measured by the question, “How would you rate (NAME)’s health in general?” Responses were coded into three categories: 0 = excellent or very good, 1 = good, and 2 = poor or very poor.

Similarly, mother-level control variables are time-varying: knows she is HIV positive, and the number of children under age 15 living in the household. The former variable was based on mother's HIV status, as measured in previous survey waves, and whether she learned her status at the time. In 2004, respondents who participated in HIV testing did not receive their results at the time of testing. If they chose to learn their status, they picked up their results from a centralized location several weeks later. In 2006 and 2008, the MLSFH used rapid HIV testing, allowing respondents to learn their status immediately after testing. A respondent who tested positive in a previous wave and did not pick up or learn her result was coded as not knowing that she is HIV positive. If a respondent tested negative or was not tested in the previous survey wave, she was coded as not knowing that she is HIV positive. I included this variable in models because knowledge of being HIV positive could affect both marital instability and children's schooling. Grant (2008) demonstrated that learning one's HIV status increases investments in children's schooling. The number of children under age 15 living in the mother's household could also influence children's schooling. Households with greater numbers of children under age 15 may have fewer economic resources per child, which could affect household decisions to send children to school.

Finally, I included a set of variables that test whether economic resources, maternal coresidence, and maternal psychological well-being explain the association between parental divorce and children's schooling. Economic resources were represented by a set of variables measuring whether the mother's household had the following assets: radio, bicycle, or metal roof.⁷ Ownership of these assets reflects access to economic resources that may influence children's schooling. Because of variation in ownership of these assets in the study sample, prior studies have also used all or a combination of these assets to measure household

⁷Although a household wealth index is available in the data set, more women have missing data on this variable than on the household asset variables. To prevent further reduction of the analytic sample, I decided to control for household asset variables. In addition, growing evidence suggests that household wealth indices created using principal component analysis often misclassify subjects into the wrong wealth quintile (Howe et al. 2008; Sharker et al. 2014). The potential for misclassification served as another reason to control for selected household assets instead of a household wealth index.

economic resources (Anglewicz 2012; Grant 2008; Kohler et al. 2007). A measure of maternal coresidence was created from mother's reports of where her child usually lived. The child was coded as living with his or her mother if the mother reported that the child lives in the same house or household. All other children were coded as not living with their mother. To address concerns that mother's psychological well-being could be a mediating factor, I included the Mental Component Summary (MCS-12)—a measure of mental health constructed from a set of 12 questions—in regression models. This continuous measure is a composite score based on four dimensions of mental well-being: mental health, role limitation due to emotional problems, social functioning, and vitality (Ware et al. 1996). Higher scores represent better mental well-being.

Analytic Strategy

This study used fixed-effects models to examine the effect of parental divorce on children's schooling. Fixed-effects models control for unobserved heterogeneity that could influence both parental divorce and schooling (Allison 2009). Not controlling for unobserved characteristics could result in biased estimates of parental divorce. Rather than parental divorce causing poor schooling outcomes, unobserved characteristics (e.g., parents' personality and parenting behaviors) could be the cause. Because fixed-effects estimates are calculated using within-individual differences, the only observations used to produce estimates of parental divorce were those for which marital change was observed. Between-individual differences were discarded when estimates were calculated. Thus, fixed-effects models do not provide estimates of time-constant variables, such as gender and ethnic group.

The determinants of current school attendance are estimated using a linear probability model with the following specification:

$$Y_{it} = \delta D_{it} + \beta \mathbf{X}_{it} + \alpha_i + \gamma_t + \varepsilon_{it}$$

where Y_{it} is a (0,1) indicator of whether child i is attending school in year t ; D_{it} is a (0,1) indicator of whether the child's parents are divorced in year t ; \mathbf{X}_{it} represents a vector of covariates for child i in year t ; α_i is a vector of unobserved fixed factors for child i (i.e., unobserved individual and family characteristics); γ_t is a year-specific effect; and ε_{it} is a random and normally distributed disturbance term.

The determinants of grade attainment and schooling gap are estimated using linear regression with the following specification:

$$Y_{it} = \delta D_{it} + \beta \mathbf{X}_{it} + \alpha_i + \gamma_t + \varepsilon_{it}$$

where Y_{it} is the number of grades of schooling attained or the schooling gap for child i in year t , and all other variables are as defined previously. Models of schooling gap were restricted to children attending school in two or three survey waves. If a child has data in two survey waves but was not attending school in both rounds, the child was not included in analyses of schooling gap.

For each outcome, three models were constructed. Model 1 includes divorced parents, child's age, child's general health status, mother knows she is HIV positive, number of

children less than 15 years in mother's household, and survey year. In preliminary analyses, I added potential mediating variables individually (household assets, maternal coresidence, MCS-12) to models and observed no change in the coefficient of divorced parents. As a result, I include both maternal coresidence and household assets (radio, bicycle, metal roof) in Model 2. I did not include MCS-12 until Model 3 because this variable has a substantial amount of missing data. Rather than reduce the analytic sample of all nested models, I limited the reduction to the final model.

Because of the small size of the analytic sample, I conducted regression analyses on a pooled sample of boys and girls. I included interaction terms to test whether the relationship between parental divorce and schooling differs by age or gender. Where statistically significant, these terms are mentioned in the results section. Finally, I adjusted standard errors to take into account the clustering of children within mothers.

Fixed-effects models are preferable over random-effects models because the former controls for unobserved heterogeneity that can influence both parental divorce and children's schooling. Random-effects models, instead, assume that unobserved characteristics are uncorrelated with observed characteristics, and estimates are produced using information from both within and between individuals. Although random-effects models provide estimates for both time-constant and time-varying variables, fixed-effects models produce estimates for the latter only. I conducted a Hausman test to test the null hypothesis that random-effects coefficients are identical to fixed-effects coefficients. Results for all three outcomes indicate that fixed-effects results are preferable to those of random effects. As a comparison, I present estimates from random-effects models in Table 5 (in the appendix).

Results

Descriptive Statistics

Table 3 displays background characteristics of children in the analytic sample. I present data from 2008 because all children have data for this year. Approximately one-half of the children are male; 36 % are 6–9 years, 37 % are 10–13 years, and 27 % are 14–17 years. Tumbuka children make up the largest proportion of children (37 %), followed by Chewa (28 %), Yao (21 %), and other ethnic groups (14 %). Overall, most children are reported to be in excellent or very good health (79 %), 20 % are reported in good health, and 1 % are reported in poor or very poor health. The majority of children, 89 %, live with their mother. Although 15 % of children have divorced parents, only 4 % experienced a divorce between 2006 and 2010.

The bottom panel of Table 3 presents maternal characteristics. Approximately 3 % of children have mothers who know they are HIV positive. On average, 3.6 children 15 years or younger live in the mother's household. Whereas the majority of women live in households that possess a radio (73 %) or bicycle (64 %), only 21 % live in households with a metal roof. Educational attainment varies widely among mothers of children: 29 % never attended school, 57 % have some primary school, 9 % completed primary school, and 6 % have secondary schooling or higher.

Next, I present graphical depictions of schooling outcomes by parents' marriage status (Fig. 1). The majority of children are currently attending school, regardless of their parents' marriage status. However, a significantly higher percentage of children with married parents are attending school: 87 % versus 81 %. Grade attainment does not differ by parents' marriage status and is likely due to children with divorced parents being, on average, one year older than children with married parents (not shown). Among children currently attending school, those with divorced parents have a significantly larger schooling gap—approximately 0.5 grades larger—than children with married parents, thus indicating that children with divorced parents are more likely to be behind in school. Note that the relationships shown in Fig. 1 may be endogenous, hence the need for fixed-effect regressions to control for selection into divorce.

Regression Analyses

Table 4 presents parameter estimates of fixed-effects regression models of associations between parental divorce and children's schooling. These models control for unobserved heterogeneity that could influence both parental divorce and children's schooling. Current school attendance is the first outcome presented. Model 1 shows no association between parental divorce and current school attendance. Even after potential mediators are controlled for, maternal coresidence, and household assets (radio, bicycle, metal roof), the coefficient of parental divorce remains close to 0 (Model 2). The coefficient for maternal coresidence is highly significant: children living with their mothers are significantly more likely to be attending school. In Model 3, I test whether psychological distress, as measured by MCS-12, mediates the relationship between divorce and current school attendance. Although MCS-12 is significant, it does not mediate this relationship.

I add an interaction term between parental divorce and gender to test whether the relationship between parental divorce and current school attendance differs by gender (not shown). Although the main effect of parental divorce remains insignificant, the interaction term is significant, suggesting that divorce affects boys and girls differently. Girls affected by divorce are significantly less likely to be attending school.

Several control variables are shown to be significant in models. Children in the middle age group (10–13 years) are marginally more likely to be attending school than those in the youngest age group (6–9 years). No difference in school attendance is observed between children in the youngest and oldest age groups, likely a result of delayed school entry among younger children and school dropout among older children. Number of children living in the mother's household is positively associated with school attendance.

Next, I present fixed-effects coefficients from models of grade attainment. As shown in Model 1, children from divorced marriages have significantly lower grade attainment than their counterparts from intact marriages. When I add maternal coresidence and household assets to Model 2, the coefficient of divorced parents barely changes, suggesting that they are not the underlying mechanisms behind this relationship. Having a metal roof, however, is significantly and positively associated with higher grade attainment. In Model 3, where I add MCS-12, divorce remains significantly associated with grade attainment. Among control variables, age and number of children living in mother's household are the only variables

that are significantly associated with grade attainment. Children ages 14–17 years have significantly higher grade attainment than children ages 6–9 years, and number of children living in mother’s household is negatively associated with grade attainment.

Last, I show parameter estimates from fixed-effects regression models of schooling gap. Recall that schooling gap is measured only among children currently attending school. Children who were not attending school at the time of the survey are not included in these analyses. In Model 1, the coefficient of divorced parents is marginally significant: children with divorced parents have a larger schooling gap than children with married parents, providing evidence that children with divorced parents are more likely to fall behind in school. In Models 2 and 3, the addition of potential mediators does not affect the coefficient of divorced parents. Age is the only control variable that is significant: children in the oldest age group have a significantly smaller schooling gap compared with those in the youngest age group—likely due to the selection of older children still attending school. Older children who are still attending school are likely doing so because they are performing well in school.

Discussion

The handful of published studies examining the relationship between parental divorce and children’s schooling in sub-Saharan Africa (Carling and Tonnessen 2013; Thiombiano et al. 2013; Oya and Sender 2009) have relied on cross-sectional data. Building on this literature, the present study used child-level fixed-effects models to control for unobserved heterogeneity that could affect both parental divorce and children’s schooling. After controlling for selection into divorce, I found that parental divorce leads to lower grade attainment and a larger schooling gap (among children currently attending school). The effect of parental divorce differs by gender for current school attendance: girls are less likely to be attending school after their parents divorce.

I tested whether certain stressors produced during the divorce process increased the risk of adverse schooling outcomes. Differences in economic resources, maternal coresidence, and maternal psychological well-being did not explain the relationship between parental divorce and children’s schooling. Instead, other stressors, such as psychological distress experienced by children (Bojuwoye and Akpan 2009), could play a role. Before divorce occurs, children may watch or hear their parents argue, feel increased tension within the household, not understand what is happening between their parents, and constantly worry about them. After divorce occurs, they may be forced to adjust to living with one or neither parent, living apart from siblings, changing schools, and experiencing parental remarriage. These stressors can lead to psychological and behavioral problems among children (Amato 2001; Amato and Keith 1991; Morrison and Cherlin 1995; Sun and Li 2002), which in turn could result in school dropout or poor school performance.

Furthermore, fixed-effects estimates capture only the short-term effects of divorce—those that occurred between survey waves. The long-term effects may be bigger or smaller. According to the divorce-stress-adjustment perspective, the long-term effects of divorce on children could follow one of two pathways (Amato 2000). The crisis model holds that divorce is a temporary crisis that children will adapt to over time, eventually returning to

their pre-divorce levels of functioning. The chronic strain model, in contrast, holds that divorce produces chronic strains that cause children to experience continued declines in functioning. These chronic strains include poverty, depression, and the experience of multiple transitions, including parental remarriage and divorce, during childhood.

Current school attendance is the only schooling outcome that has a gendered relationship with parental divorce. Girls affected by divorce are less likely to be attending school than their male counterparts. In the event of a divorce, mothers may engage in paid labor to meet the family's financial needs. As a result, girls may have to drop out of school to help with domestic responsibilities. No gender differences exist for the other schooling outcomes: children affected by divorce, regardless of gender, have lower grade attainment and a larger schooling gap. The reason behind this finding is twofold. Girls typically have higher grade attainment than boys (Grant and Behrman 2010), and following a divorce, they are less likely to be attending school. The combination of these two processes results in similar grade attainment between boys and girls in the immediate years after divorce. Recall that fixed-effects estimates capture only the short-term effects of divorce. Thus, these findings do not imply that these gender differences will hold in the long term. In the worst-case scenario, girls may drop out of school permanently and begin adulthood with lower grade attainment compared with boys. In the best-case scenario, girls may drop out of school temporarily and return to school after the crisis period. In such cases, girls may catch up to boys and reach adulthood with similar grade attainment.

This study found that Malawian children who experienced parental divorce have lower grade attainment—a finding with important implications for the future of children affected by divorce. In all likelihood, children from divorced marriages will begin adulthood with lower levels of human capital, diminishing their chances of having a successful future. Previous research has shown that better-educated individuals are more likely to experience greater economic returns to schooling (Garcia and Fares 2008; Psacharopoulos and Patrinos 2004; Schultz 2004), better health outcomes (Cutler and Lleras-Muney 2008; Lynch 2003), and lower mortality rates (Elo and Preston 1996; Meara et al. 2008). Because maternal education is highly correlated with child health and mortality (Bicego and Boerma 1993; Desai and Alva 1998; Gakidou et al. 2010), higher grade attainment, especially among girls, can also improve the well-being of future children.

Several limitations of this study are worth mentioning. Although an advantage of fixed-effects models is the ability to control for time-constant unobserved heterogeneity, this modeling strategy is unable to control for time-varying unobserved heterogeneity. Omitting such variables could result in overestimates of the effect of parental divorce. Second, this analysis relied heavily on maternal reports of children's ages, marriage start and end dates, and (in the case of terminated marriages) how marriages ended. Inaccurate reports can lead to children being misclassified, potentially affecting results. I used reconstructed marriage history data to ensure that the most complete marriage histories were used to classify children. Although these histories are more complete than actual data collected in survey waves, marriages that were consistently underreported were omitted from these histories. Finally, I could not control for household measures of children who were not living with their mothers at the time of the survey. Instead, I controlled for mother's household

measures in regression models. Doing so should minimally affect the coefficient of parental divorce because this coefficient captures the short-term effects of divorce, and most children continue to live with their mother in the immediate years after divorce (Grant and Yeatman 2014). Maternal remarriage, rather than recent divorce, is the driver behind children living apart from their mother.

The results of the present study contribute to our understanding of the relationship between parental divorce and children's schooling in a sub-Saharan African setting. Although results show a negative relationship, many directions still exist for future research on this topic. This study examined three pathways through which parental divorce might affect children's schooling, none of which were found to be the mechanism. To reduce the negative impact of parental divorce, future research should investigate the underlying causes behind this relationship. Fixed-effects estimates pick up only on the short-term effects of divorce. Because the long-term effects might differ from those of the short-term, future research should examine the long-term effects. In rural Malawi, remarriage after divorce is quite common (Reniers 2003) and could influence the impact of divorce on children's schooling. Because of a small number of cases of maternal remarriage, I was unable to examine its influence on schooling. Future research should explore how remarriage affects children's schooling. Last, it is unknown whether these results are applicable to other sub-Saharan African countries, especially countries with lower rates of divorce. In countries where divorce is less common, children from divorced marriages may experience greater levels of stigma and suffer even poorer schooling outcomes. Moreover, divorce is stabilizing or declining in most African countries (Clark and Brauner-Otto 2015). In Malawi, divorce declined between 1992 and 2000, and has since stabilized. Given these trends, it would be important to investigate the implications of divorce trends for the relationship between divorce and children's schooling.

Acknowledgments

The author would like to thank Hans-Peter Kohler, Jere Behrman, Susan Watkins, Jennifer Glick, Sarah Hayford, and Monica Grant for their helpful comments. The research was completed while the author was a graduate student at the University of Pennsylvania and was supported by grants from the National Institutes of Health (5-R01-HD-053781-05, 2-T32-HD-007242-31).

Appendix

Table 5

Random-effects regression coefficients of schooling outcomes, aged 6–17: MLSFH, 2006–2010

Variables	Current School Attendance			Grade Attainment			Schooling Gap		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Child Characteristics									
Divorced parents	−0.07** (0.02)	−0.04 (0.02)	−0.03 (0.02)	−0.20 [†] (0.10)	−0.19 [†] (0.10)	−0.22* (0.11)	0.21* (0.10)	0.22* (0.10)	0.23* (0.11)
Age									
6–9 (ref.)	—	—	—	—	—	—	—	—	—

Variables	Current School Attendance			Grade Attainment			Schooling Gap		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
10–13	0.08*** (0.01)	0.08*** (0.01)	0.08*** (0.01)	1.30*** (0.04)	1.31*** (0.04)	1.30*** (0.04)	1.00*** (0.04)	1.03*** (0.04)	1.05*** (0.04)
14–17	-0.01 (0.01)	-0.00 (0.01)	-0.01 (0.01)	2.85*** (0.07)	2.85*** (0.07)	2.85*** (0.07)	1.77*** (0.07)	1.83*** (0.07)	1.84*** (0.07)
Male	0.02 [†] (0.01)	0.01 (0.01)	0.02 (0.01)	-0.08 (0.07)	-0.08 (0.07)	-0.05 (0.07)	0.26*** (0.06)	0.26*** (0.06)	0.24*** (0.07)
Ethnic group									
Chewa (ref.)	—	—	—	—	—	—	—	—	—
Yao	-0.04 [†] (0.02)	-0.05* (0.02)	-0.04 (0.03)	-0.40** (0.13)	-0.41** (0.13)	-0.43** (0.14)	0.29* (0.13)	0.30* (0.13)	0.34* (0.14)
Tumbuka	0.03 [†] (0.02)	0.03* (0.02)	0.04* (0.02)	0.85*** (0.11)	0.82*** (0.10)	0.82*** (0.11)	-0.54*** (0.10)	-0.52*** (0.10)	-0.51*** (0.11)
Other	0.02 (0.02)	0.01 (0.02)	0.01 (0.02)	0.09 (0.14)	0.08 (0.14)	0.03 (0.16)	0.01 (0.14)	0.03 (0.14)	0.06 (0.15)
General health status									
Excellent or very good (ref.)	—	—	—	—	—	—	—	—	—
Good	-0.01 (0.01)	-0.02 (0.01)	-0.01 (0.01)	0.06 (0.05)	0.06 (0.05)	0.03 (0.05)	0.02 (0.04)	0.02 (0.04)	0.03 (0.05)
Poor or very poor	-0.08 [†] (0.05)	-0.08 [†] (0.04)	-0.09 [†] (0.05)	-0.24 [†] (0.13)	-0.24 [†] (0.14)	-0.30* (0.15)	-0.13 (0.13)	-0.15 (0.13)	-0.23 (0.15)
Maternal coresidence		0.12*** (0.02)	0.11*** (0.02)		-0.21** (0.07)	-0.21** (0.08)		0.14* (0.07)	0.15* (0.08)
Mother Characteristics									
Knows she is HIV positive	-0.02 (0.04)	-0.01 (0.04)	-0.01 (0.05)	0.09 (0.16)	0.09 (0.16)	0.07 (0.16)	-0.05 (0.13)	-0.04 (0.13)	-0.05 (0.14)
Number of children <15 years in household	0.01* (0.00)	0.00 (0.00)	0.01 (0.00)	-0.05* (0.02)	-0.04* (0.02)	-0.04* (0.02)	0.04* (0.02)	0.03 [†] (0.02)	0.04 [†] (0.02)
Educational attainment									
None (ref.)	—	—	—	—	—	—	—	—	—
Some primary	0.12*** (0.02)	0.12*** (0.02)	0.12*** (0.02)	0.38** (0.12)	0.33** (0.11)	0.28* (0.13)	-0.30* (0.12)	-0.26* (0.12)	-0.23 [†] (0.13)
Completed primary	0.17*** (0.02)	0.16*** (0.02)	0.16*** (0.03)	0.64*** (0.17)	0.59*** (0.16)	0.50** (0.18)	-0.70*** (0.16)	-0.65*** (0.16)	-0.60*** (0.17)
Secondary or more	0.16*** (0.03)	0.16*** (0.03)	0.16*** (0.03)	0.94*** (0.20)	0.84*** (0.20)	0.84*** (0.23)	-1.43*** (0.17)	-1.34*** (0.17)	-1.29*** (0.19)
Radio		0.01 (0.01)	0.00 (0.02)		0.02 (0.05)	-0.00 (0.05)		0.02 (0.05)	0.02 (0.05)
Bicycle		0.03* (0.01)	0.04** (0.01)		0.05 (0.05)	0.07 (0.05)		0.01 (0.05)	-0.02 (0.05)
Metal roof		0.02 (0.01)	0.01 (0.01)		0.29*** (0.07)	0.29*** (0.07)		-0.25*** (0.07)	-0.24*** (0.07)
Psychological well-being			-0.00** (0.00)			0.00 (0.00)			-0.00 (0.00)
Year									
2006 (ref.)	—	—	—	—	—	—	—	—	—
2008	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	0.07* (0.04)	0.04 (0.04)	0.05 (0.04)	0.69*** (0.04)	0.69*** (0.04)	0.69*** (0.04)
2010	-0.00 (0.01)	-0.00 (0.01)	-0.01 (0.02)	0.42*** (0.05)	0.37*** (0.05)	0.38*** (0.05)	1.15*** (0.05)	1.17*** (0.05)	1.16*** (0.05)

Variables	Current School Attendance			Grade Attainment			Schooling Gap		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Constant	0.73*** (0.03)	0.61*** (0.04)	0.71*** (0.06)	1.30*** (0.15)	1.43*** (0.18)	1.41*** (0.24)	0.55*** (0.15)	0.39* (0.17)	0.46* (0.23)
<i>N</i> (number of children)	1,954	1,954	1,709	1,829	1,829	1,601	1,490	1,490	1,312

Note: Robust standard errors, clustered at mother level to account for correlation between siblings, are shown in parentheses.

† $p < .10$;

* $p < .05$;

** $p < .01$;

*** $p < .001$

References

- adams, j; Anglewicz, P.; Helleringer, S.; Manyamba, C.; Mwera, J.; Reniers, G.; Watkins, SC. Identifying elusive and eager respondents in longitudinal data collection. 2013 Unpublished manuscript.
- Allison, PD. *Fixed effects regression models* (Series: Quantitative Applications in the Social Sciences). Vol. 160. Los Angeles, CA: SAGE; 2009.
- Al-Samarrai S, Zaman H. Abolishing school fees in Malawi: The impact on education access and equity. *Education Economics*. 2007; 15:359–375.
- Amato PR. The consequences of divorce for adults and children. *Journal of Marriage and Family*. 2000; 62:1269–1287.
- Amato PR. Children of divorce in the 1990s: An update of the Amato and Keith (1991) meta-analysis. *Journal of Family Psychology*. 2001; 15:355–370. [PubMed: 11584788]
- Amato PR. Research on divorce: Continuing trends and new developments. *Journal of Marriage and Family*. 2010; 72:650–666.
- Amato PR, Keith B. Parental divorce and the well-being of children: A meta-analysis. *Psychological Bulletin*. 1991; 110:26–46. [PubMed: 1832495]
- Anglewicz P. Migration, marital change, and HIV infection in Malawi. *Demography*. 2012; 49:239–265. [PubMed: 22109083]
- Ansell N, van Blerk L. Children's migration as a household/family strategy: Coping with AIDS in Lesotho and Malawi. *Journal of Southern African Studies*. 2004; 30:673–690.
- Ardington C, Leibbrandt M. Orphanhood and schooling in South Africa: Trends in the vulnerability of orphans between 1993 and 2005. *Economic Development and Cultural Change*. 2010; 58:507–536. [PubMed: 20407624]
- Arnaldo C. Ethnicity and marriage patterns in Mozambique. *African Population Studies*. 2004; 19(1): 143–164.
- Beegle K, De Weerd J, Dercon S. Orphanhood and human capital destruction: Is there persistence into adulthood? *Demography*. 2010; 47:163–180. [PubMed: 20355689]
- Bicego GT, Boerma JT. Maternal education and child survival: A comparative study of survey data from 17 countries. *Social Science & Medicine*. 1993; 36:1207–1227. [PubMed: 8511650]
- Bojuwoye O, Akpan O. Personal, familial and environmental perspectives in children's reactions to parental divorce in South Africa. *Journal of Family Studies*. 2009; 15:260–273.
- Brown SL. Family structure and child well-being: The significance of parental cohabitation. *Journal of Marriage and Family*. 2004; 66:351–367.
- Capaldi DM, Patterson GR. Relation of parental transitions to boys' adjustment problems: I. A linear hypothesis. II. Mothers at risk for transitions and unskilled parenting. *Developmental Psychology*. 1991; 27:489–504.

- Carling J, Tonnessen M. Fathers' whereabouts and children's welfare in Malawi. *Development Southern Africa*. 2013; 30:724–742.
- Carlson MJ, Corcoran ME. Family structure and children's behavioral and cognitive outcomes. *Journal of Marriage and Family*. 2001; 63:779–792.
- Case A, Ardington C. The impact of parental death on school outcomes: Longitudinal evidence from South Africa. *Demography*. 2006; 43:401–420. [PubMed: 17051820]
- Case A, Paxson C, Ableidinger J. Orphans in Africa: Parental death, poverty, and school enrollment. *Demography*. 2004; 41:483–508. [PubMed: 15461011]
- Chae S. Forgotten marriages? Measuring the reliability of retrospective marriage histories. *Demographic Research*. 2016; 34(article 19):525–562. [PubMed: 27152090]
- Clark S, Brauner-Otto S. Divorce in sub-Saharan Africa: Are unions becoming less stable? *Population and Development Review*. 2015; 41:583–605.
- Clark S, Hamplova D. Single motherhood and child mortality in sub-Saharan Africa: A life course perspective. *Demography*. 2013; 50:1521–1549. [PubMed: 23839100]
- Conger RD, Conger KJ, Elder GH, Lorenz FO, Simons RL, Whitbeck LB. A family process model of economic hardship and adjustment of early adolescent boys. *Child Development*. 1992; 63:526–541. [PubMed: 1600820]
- Cutler, DM.; Lleras-Muney, A. Education and health: Evaluating theories and evidence. In: Schoeni, RF.; House, JS.; Kaplan, GA.; Pollack, H., editors. *Making Americans healthier: Social and economic policy as health policy*. New York, NY: Russell Sage Foundation; 2008. p. 29-60.
- Demo DH, Acock AC. Singlehood, marriage, and remarriage: The effects of family structure and family relationships on mothers' well-being. *Journal of Family Issues*. 1996; 17:388–407.
- Desai S, Alva S. Maternal education and child health: Is there a strong causal relationship? *Demography*. 1998; 35:71–81. [PubMed: 9512911]
- Elo IT, Preston SH. Educational differentials in mortality: United States, 1979–85. *Social Science & Medicine*. 1996; 42:47–57. [PubMed: 8745107]
- Evans DK, Miguel E. Orphans and schooling in Africa: A longitudinal analysis. *Demography*. 2007; 44:35–57. [PubMed: 17461335]
- Foster G. The capacity of the extended family safety net for orphans in Africa. *Psychology, Health and Medicine*. 2000; 5:55–62.
- Frisco ML, Muller C, Frank K. Parents' union dissolution and adolescents' school performance: Comparing methodological approaches. *Journal of Marriage and Family*. 2007; 69:721–741. [PubMed: 20300482]
- Frye M. Bright futures in Malawi's new dawn: Educational aspirations as assertions of identity. *American Journal of Sociology*. 2012; 117:1565–1624.
- Gakidou E, Cowling K, Lozano R, Murray CJL. Increased educational attainment and its effect on child mortality in 175 countries between 1970 and 2009: A systematic analysis. *Lancet*. 2010; 376:959–974. [PubMed: 20851260]
- Garcia, M.; Fares, J. The effect of education on income and employment. In: Garcia, M.; Fares, J., editors. *Youth in Africa's labor market*. Washington, DC: World Bank; 2008. p. 39-47.
- Grant MJ, Yeatman S. The impact of family transitions on child fostering in rural Malawi. *Demography*. 2014; 51:205–228. [PubMed: 24019099]
- Grant MJ. Children's school participation and HIV/AIDS in rural Malawi: The role of parental knowledge and perceptions. *Demographic Research*. 2008; 19(article 45):1603–1634.
- Grant MJ, Behrman JR. Gender gaps in educational attainment in less developed countries. *Population and Development Review*. 2010; 36:71–89.
- Grant MJ, Soler-Hampejsek E. HIV risk perceptions, the transition to marriage, and divorce in Southern Malawi. *Studies in Family Planning*. 2014; 45:315–337. [PubMed: 25207495]
- Howe LD, Hargreaves JR, Huttly SR. Issues in the construction of wealth indices for the measurement of socio-economic position in low-income countries. *Emerging Themes in Epidemiology*. 2008; 5(3)
- Kadzamira E, Rose P. Can free primary education meet the needs of the poor?: Evidence from Malawi. *International Journal of Educational Development*. 2003; 23:501–516.

- Kaler A. "Many divorces and many spinsters": Marriage as an invented tradition in southern Malawi, 1946–1999. *Journal of Family History*. 2001; 26:529–556. [PubMed: 19317026]
- Kelly JB. Children's living arrangements following separation and divorce: Insights from empirical and clinical research. *Family Process*. 2007; 46:35–52. [PubMed: 17375727]
- Kendall N. Education for all meets political democratization: Free primary education and the neoliberalization of the Malawian school and state. *Comparative Education Review*. 2007; 51:281–305.
- Kohler H-P, Behrman JR, Watkins SC. Social networks and HIV/AIDS risk perceptions. *Demography*. 2007; 44:1–33. [PubMed: 17461334]
- Kunje D. The Malawi integrated in-service teacher education programme: An experiment with mixed-mode training. *International Journal of Educational Development*. 2002; 22:305–320.
- Kyei, P. Essays on the economic and social demography of households (Unpublished doctoral dissertation). Philadelphia, PA: Graduate Group in Demography, University of Pennsylvania; 2010.
- Lloyd CB, Blanc AK. Children's schooling in sub-Saharan Africa: The role of fathers, mothers, and others. *Population and Development Review*. 1996; 22:265–298.
- Lynch SM. Cohort and life-course patterns in the relationship between education and health: A hierarchical approach. *Demography*. 2003; 40:309–331. [PubMed: 12846134]
- Magnuson K, Berger LM. Family structure states and transitions: Associations with children's well-being during middle childhood. *Journal of Marriage and Family*. 2009; 71:575–591. [PubMed: 20228952]
- McLanahan, S.; Sandefur, G. *Growing up with a single parent: What hurts, what helps*. Cambridge, MA: Harvard University Press; 1994.
- McLanahan S, Tach L, Schneider D. The causal effects of father absence. *Annual Review of Sociology*. 2013; 39:399–427.
- McLoyd VC. The impact of economic hardship on black-families and children: Psychological distress, parenting, and socioemotional development. *Child Development*. 1990; 61:311–346. [PubMed: 2188806]
- Meara ER, Richards S, Cutler DM. The gap gets bigger: Changes on mortality and life expectancy, by education, 1981–2000. *Health Affairs*. 2008; 27:350–360. [PubMed: 18332489]
- Mensch BS, Soler-Hampejsek E, Kelly CA, Hewett PC, Grant MJ. Challenges in measuring the sequencing of life events among adolescents in Malawi: A cautionary note. *Demography*. 2014; 51:277–285. [PubMed: 24399140]
- Mitchell, JC. *The Yao village: A study in the social structure of a Nyasaland tribe*. Manchester, UK: Manchester University Press; 1956.
- Mojola S. Multiple transitions and HIV risk among orphaned Kenyan schoolgirls. *Studies in Family Planning*. 2011; 42:29–40. [PubMed: 21500699]
- Morrison DR, Cherlin AJ. The divorce process and young children's well-being: A prospective analysis. *Journal of Marriage and Family*. 1995; 57:800–812.
- Mwambene L. Custody disputes under African customary family law in Malawi: Adaptability to change? *International Journal of Law, Policy and the Family*. 2012; 26:127–142.
- National Statistical Office, & ICF Macro. *Malawi Demographic and Health Surveys*. Zomba, Malawi, and Calverton, MD: NSO and ICF Macro; 2011.
- Oya C, Sender J. Divorced, separated, and widowed women workers in rural Mozambique. *Feminist Economics*. 2009; 15(2):1–31.
- Page ME, Stevens AHS. The economic consequences of absent parents. *Journal of Human Resources*. 2004; 39:80–107.
- Peters PE. Against the odds: Matriliney, land and gender in the shire highlands of Malawi. *Critique of Anthropology*. 1997; 17:189–210.
- Peterson JL, Zill N. Marital disruption, parent-child relationships, and behavior problems in children. *Journal of Marriage and the Family*. 1986; 48:295–307.
- Psacharopoulos G, Patrinos HA. Returns to investment in education: A further update. *Education Economics*. 2004; 12:111–134.

- Reniers G. Divorce and remarriage in rural Malawi. *Demographic Research, Special Collection*. 2003; 1(article 6):175–206.
- Reniers G. Marital strategies for regulating exposure to HIV. *Demography*. 2008; 45:417–438. [PubMed: 18613488]
- Rose, P. Cost-sharing in Malawian primary schooling: From the Washington to the post-Washington consensus (Unpublished doctoral dissertation). Brighton, UK: University of Sussex; 2002.
- Schultz TP. Evidence of returns to schooling in Africa from household surveys: Monitoring and restructuring the market for education. *Journal of African Economies*. 2004; 13:95–148.
- Sharker MY, Nasser M, Abedin J, Arnold BF, Luby SP. The risk of misclassifying subjects within principal component based asset index. *Emerging Themes in Epidemiology*. 2014; 11(article 6)
- Smith KP, Watkins SC. Perceptions of risk and strategies for prevention: Responses to HIV/AIDS in rural Malawi. *Social Science & Medicine*. 2005; 60:649–660. [PubMed: 15550312]
- Sun Y, Li YL. Children’s well-being during parents’ marital disruption process: A pooled time-series analysis. *Journal of Marriage and Family*. 2002; 64:472–488.
- Takane T. Customary land tenure, inheritance rules, and smallholder farmers in Malawi. *Journal of Southern African Studies*. 2008; 34:269–291.
- Takyi BK, Gyimah SO. Matrilineal family ties and marital dissolution in Ghana. *Journal of Family Issues*. 2007; 28:682–705.
- Tew, M. Peoples of the Lake Nyasa region. London, UK: International African Institute; 1950.
- Thiombiano BG, LeGrand TK, Kobiané J-F. Effects of parental union dissolution on child mortality and child schooling in Burkina Faso. *Demographic Research*. 2013; 29(article 29):797–816.
- Thomson E, Hanson TL, McLanahan SS. Family structure and child well-being: Economic resources vs. parental behaviors. *Social Forces*. 1994; 73:221–242.
- Tilson D, Larsen U. Divorce in Ethiopia: The impact of early marriage and childlessness. *Journal of Biosocial Science*. 2000; 32:355–372. [PubMed: 10979229]
- Timaeus IA, Boler T. Father figures: The progress at school of orphans in South Africa. *AIDS*. 2007; 21(Suppl. 7):S83–S93.
- Townsend N, Madhavan S, Tollman S, Garenne M, Kahn K. Children’s residence patterns and educational attainment in rural South Africa, 1997. *Population Studies*. 2002; 56:215–225.
- UNAIDS. UNAIDS report on the global AIDS epidemic 2013 (Global report). Geneva, Switzerland: UNAIDS; 2013.
- UNDP. *Work for human development* (Human Development Report 2015:). New York, NY: United Nations Development Programme; 2015.
- Vaughan M. Which family? Problems in the reconstruction of the history of the family as an economic and cultural unit. *Journal of African History*. 1983; 24:275–283.
- Verhoef H. “A child has many mothers”: Views of child fostering in northwestern Cameroon. *Childhood*. 2005; 12:369–390.
- Ware JE, Kosinski M, Keller SD. A 12-item short-form health survey: Construction of scales and preliminary tests of reliability and validity. *Medical Care*. 1996; 34:220–233. [PubMed: 8628042]
- World Bank. The education system in Malawi (World Bank Working Paper No. 182). Washington, DC: World Bank; 2010.
- Yabiku, ST.; Agadjanian, V. Men’s labor migration and schooling of children left behind in rural Mozambique. Paper presented at the International Union for the Scientific Study of Population International Population Conference; Busan, South Korea. 2013 Aug.
- Yao L, Treiman DJ. Migration, remittances and educational stratification among blacks in apartheid and post-apartheid South Africa. *Social Forces*. 2011; 89:1119–1143.

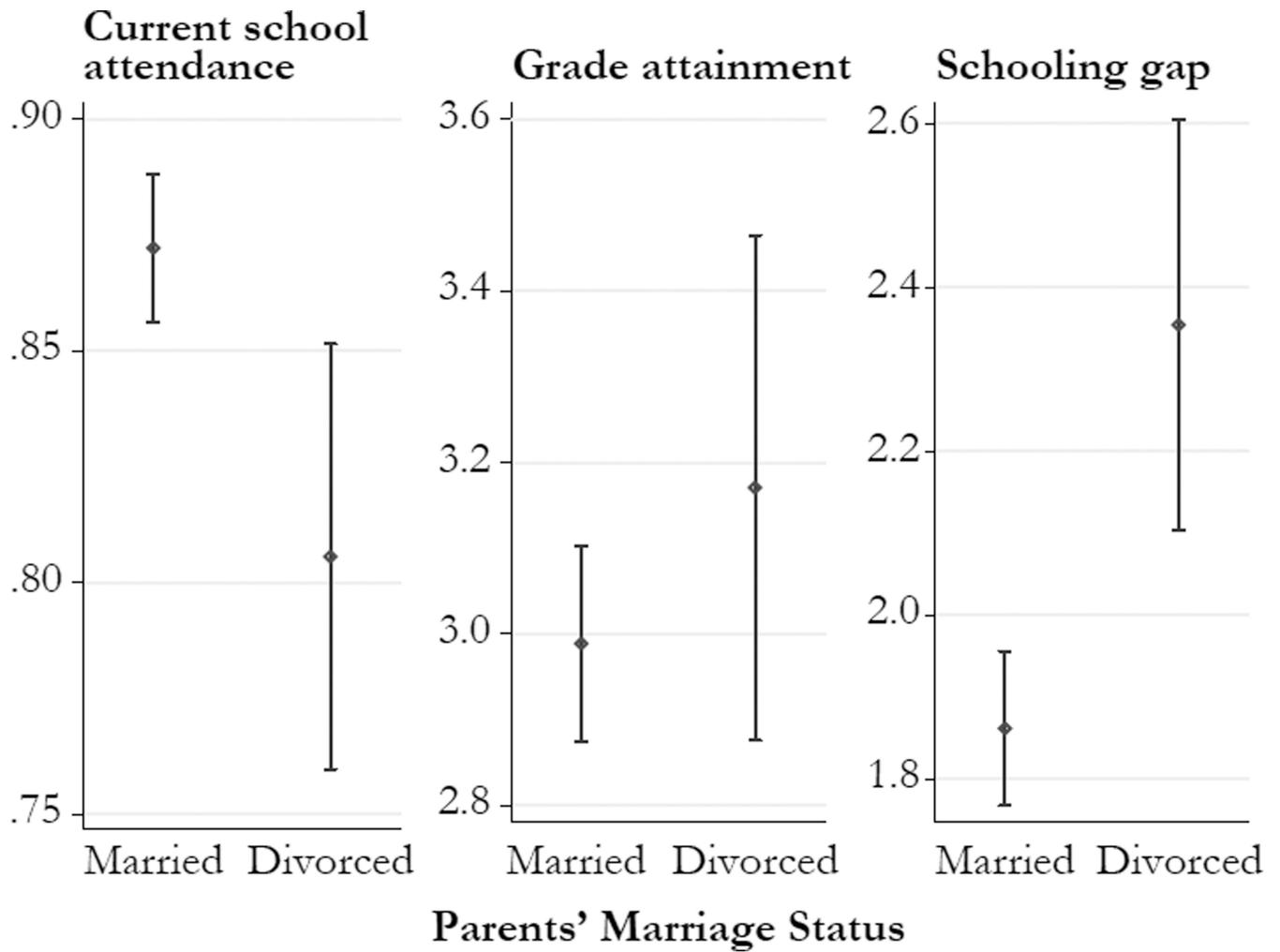


Fig. 1.
 Schooling outcomes by parents' marriage status, with 95 % confidence intervals shown:
 MLSFH, 2008

Table 1

Steps taken to obtain analytic sample, 6–17 years: MLSFH, 2006–2010

	2006	2008	2010
Living Biological Children Listed in Women's Household Roster ^a	2,292	3,078	2,507
Linked Across Survey Waves	1,709	2,702	1,955
Linked Across Survey Waves With Medium- or High-Quality Linkages	1,574	2,599	1,888
Mother Has Reconstructed Marriage History Data	1,517	2,337	1,868
Parent's Marriage Status (%)			
Still married	77.7	74.5	72.8
Divorced	11.1	12.6	14.2
Widowed	5.0	6.6	7.0
Premarital birth	2.4	2.2	1.8
Indeterminate	3.7	4.1	4.2
Potential Sample (restricted to children with married or divorced parents)	1,324	2,029	1,625
Final Sample (nonmissing data)	1,222	1,954	1,566

Notes: The age range varies by survey year. For 2006, it is 6–15 years; for 2008, 6–17 years; and for 2010, 8–17 years.

^aMother participated in main survey questionnaire.

Table 2

Distribution of variables, cross-sectional sample and analytic sample: MLSFH, 2008

	Cross- Sectional	Analytic Sample
Outcomes		
Current school attendance (%)	82.5	86.2 ***
Grades of schooling attained	3.0	3.0
Schooling gap	1.9	1.9
Child Characteristics		
Divorced parents (%)	18.6	14.7 ***
Male (%)	49.5	49.5
Age (%)		
6–9 years	36.2	35.8
10–13 years	34.1	36.8 †
14–17 years	29.7	27.4 †
Ethnic group (%)		
Chewa	29.9	28.4
Yao	23.6	21.4 †
Tumbuka	32.2	36.6 **
Other	14.3	13.6
General health status (%)		
Excellent or very good	19.6	19.8
Good	78.8	78.8
Poor/very poor	1.6	1.4
Maternal coresidence (%)	86.9	88.9 *
Mother Characteristics		
Knows she is HIV positive (%)	3.4	3.1
Number of children <15 years in household	3.5	3.6 *
Household amenities (%)		
Radio	71.5	73.0
Bicycle	63.1	64.4
Metal roof	20.2	20.7
Educational attainment (%)		
Never attended school	30.6	28.7
Some primary	55.0	56.7
Completed primary	8.7	9.2
Secondary or higher	5.7	5.5
<i>N</i>	2,716	1,954

Note: Both cross-sectional and analytic samples are restricted to children with married or divorced parents.

† $p < .10$;

* $p < .05$;

**
 $p < .01$;

 $p < .001$

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Table 3

Summary statistics for children: MLSFH, 2008

Characteristics	Mean or %
Child Characteristics	
Male (%)	49.5
Age (%)	
6–9 years	35.8
10–13 years	36.8
14–17 years	27.4
Ethnic group (%)	
Chewa	28.4
Yao	21.4
Tumbuka	36.6
Other	13.6
General health status (%)	
Excellent or very good	78.8
Good	19.8
Poor or very poor	1.4
Maternal coresidence (%)	88.9
Parents currently divorced (%)	14.7
Parents recently divorced, 2006–2010 (%)	3.7
Mother Characteristics	
Knows she is HIV positive (%)	3.1
Number of children <15 years in household	3.6
Household amenities (%)	
Radio	73.0
Bicycle	64.4
Metal roof	20.7
Educational attainment (%)	
Never attended school	28.7
Some primary	56.7
Completed primary	9.2
Secondary or higher	5.5
<i>N</i>	1,954

Table 4
Fixed-effects regression coefficients of schooling outcomes, aged 6–17: MLSFH, 2006–2010

Variables	Current School Attendance			Grade Attainment			Schooling Gap		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Child Characteristics									
Divorced parents	-0.00 (0.05)	0.02 (0.05)	0.02 (0.05)	-0.36* (0.15)	-0.35* (0.15)	-0.35* (0.16)	0.28 [†] (0.17)	0.30 [†] (0.18)	0.32 [†] (0.19)
Age									
6–9 (ref.)	—	—	—	—	—	—	—	—	—
10–13	0.03 [†] (0.02)	0.03 [†] (0.02)	0.03 (0.02)	0.03 (0.05)	0.03 (0.05)	0.02 (0.05)	0.02 (0.05)	0.02 (0.05)	0.03 (0.05)
14–17	-0.04 (0.03)	-0.04 (0.03)	-0.06 [†] (0.03)	0.26** (0.08)	0.26** (0.08)	0.24** (0.08)	-0.20* (0.09)	-0.19* (0.09)	-0.20* (0.09)
General health status									
Excellent or very good (ref.)	—	—	—	—	—	—	—	—	—
Good	0.01 (0.01)	0.01 (0.01)	0.00 (0.02)	-0.03 (0.04)	-0.03 (0.04)	-0.01 (0.04)	-0.00 (0.04)	-0.00 (0.04)	-0.01 (0.05)
Poor or very poor	-0.02 (0.05)	-0.02 (0.05)	-0.01 (0.06)	-0.04 (0.12)	-0.03 (0.13)	-0.01 (0.14)	-0.08 (0.13)	-0.09 (0.13)	-0.19 (0.15)
Maternal coresidence		0.14*** (0.03)	0.15*** (0.03)		0.02 (0.06)	0.04 (0.07)		0.08 (0.07)	0.06 (0.08)
Mother Characteristics									
Knows she is HIV positive	-0.02 (0.06)	-0.00 (0.06)	-0.00 (0.07)	0.13 (0.16)	0.15 (0.16)	0.12 (0.17)	-0.23 (0.18)	-0.25 (0.18)	-0.20 (0.19)
Number of children <15 years in household	0.02** (0.01)	0.01 [†] (0.01)	0.01 [†] (0.01)	-0.02 (0.02)	-0.03 (0.02)	-0.03 [†] (0.02)	0.03 (0.02)	0.03 (0.02)	0.03 [†] (0.02)
Radio		0.01 (0.02)	0.01 (0.02)		-0.02 (0.05)	-0.04 (0.05)		0.05 (0.05)	0.06 (0.05)
Bicycle		0.01 (0.02)	0.01 (0.02)		-0.06 (0.05)	-0.03 (0.05)		0.06 (0.05)	0.04 (0.06)
Metal roof		0.04 (0.03)	0.03 (0.03)		0.15* (0.08)	0.18* (0.08)		-0.11 (0.08)	-0.14 [†] (0.08)
Psychological well-being			-0.00* (0.00)			0.00 (0.00)			-0.00 (0.00)
Year									

Variables	Current School Attendance			Grade Attainment			Schooling Gap		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
2006 (ref.)	—	—	—	—	—	—	—	—	—
2008	-0.00 (0.02)	0.01 (0.01)	0.01 (0.02)	0.74*** (0.04)	0.74*** (0.04)	0.74*** (0.04)	1.20*** (0.04)	1.20*** (0.04)	1.20*** (0.04)
2010	0.01 (0.02)	0.02 (0.02)	0.02 (0.02)	1.70*** (0.06)	1.69*** (0.06)	1.69*** (0.06)	2.14*** (0.06)	2.16*** (0.06)	2.16*** (0.06)
Constant	0.79*** (0.03)	0.66*** (0.04)	0.78*** (0.07)	2.36*** (0.08)	2.38*** (0.10)	2.28*** (0.18)	0.60*** (0.08)	0.47*** (0.11)	0.57*** (0.19)
N(number of children)	1,954	1,954	1,709	1,829	1,829	1,601	1,490	1,490	1,312

Note: Robust standard errors, clustered at mother level to account for correlation between siblings, are shown in parentheses.

^aStatistically significant at $p = .10$.

[†] $p < .10$;

* $p < .05$;

** $p < .01$;

*** $p < .001$