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Childhood Risk of Parental Absence in Tanzania

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Abstract

Although parents might not live with their children for a variety of reasons, existing accounts of parental absence often examine one cause in isolation. Using detailed longitudinal demographic surveillance data from Rufiji, Tanzania, this article examines parental absence due to death, migration, child relocation, union dissolution, and union formation from 2001–2011. Employing survival analysis, the article quantifies children's risk of absence by cause and investigates sociodemographic variation in this risk. Of children born into two-parent households, 25 % experience maternal absence by age 10, and 40 % experience paternal absence by the same age. Roughly one-quarter of children are born into single-mother families with an absent father at birth, and nearly 70 % of these children experience maternal absence as well by age 10. Despite the emphasis on orphanhood in the research and policy communities, parental death is the least common cause of absence. Furthermore, although demographic and socioeconomic characteristics are strong predictors of absence, variation in these relationships across causes underscores the distinctiveness and similarity of different reasons for absence.

Keywords

Family structure; Migration; Child fostering; Orphanhood; Sub-Saharan Africa

Introduction

Children in sub-Saharan Africa commonly live apart from one or both of their parents. Across the region, recent estimates of the percentage of children not living with either parent range from a low of 8 % in Mali to a high of 30 % in Swaziland (CPS/SSDSPF et al. 2014; Central Statistical Office and Macro International 2008). In Tanzania, the country of study, 13 % of children do not live with either parent (National Bureau of Statistics and ICF Macro 2011). Yet, children's experiences are varied, resulting partly from different reasons for parental absence, as well as timing, duration, and frequencies of parental absence. With rapid urbanization, increasing levels of development, and sustained high levels of adult mortality, parental absence reflects a constellation of forces influencing mortality, migration, and marital practices.

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Parental absence is not only common but also consequential, with both immediate and long-term implications for child well-being. Indeed, much of the literature focuses on the impact of parental absence, particularly parental death. With some exceptions (Deininger et al. 2003; Lindblade et al. 2003), the literature finds negative consequences of orphanhood across a variety of domains. Orphans have higher morbidity (Ainsworth and Semali 2000; Birdthistle et al. 2008), higher mortality (Clark et al. 2013; Nakiyingi et al. 2003), worse educational outcomes (Ardington and Leibbrandt 2010; Beegle et al. 2010a, b; Case and Ardington 2006; Case et al. 2004; Evans and Miguel 2007; Kidman et al. 2012), earlier sexual debut (Palermo and Peterman 2009), and a higher likelihood of migrating (Ford and Hosegood 2005; Madhavan et al. 2012) than their counterparts with living parents. Beyond orphanhood, an emerging literature investigates the consequences of marriage-related absence for children, with recent findings indicating that children of divorced mothers have higher mortality (Clark and Hamplová 2013) and lower school enrollment (Chae 2013) than children of married mothers. Moreover, family instability in general is associated with earlier transitions to adulthood, although the reasons for temporary separation are unknown (Goldberg 2013; Marteleto et al. 2012).

Researchers examining parental absence often assume that the absence of a parent results in a loss of resources and is therefore deleterious for children. However, in a context of shared childrearing, the absence of parents may be less consequential because children are commonly cared for by relatives or kin who can buffer against the negative consequences of parental absence (Case and Ardington 2006; Castle 1995; Parker and Short 2009). Indeed, such fostering practices often benefit both sending parents and recipient families, equalizing inequalities and promoting mobility (Bledsoe and Isiugo-Abanihe 1989; Eloundou-Enyegue and Shapiro 2005; Eloundou-Enyegue and Stokes 2002; Goody 1982; Lockwood 1998; Page 1989; Serra 2009). Depending on the cause, the absence of a parent may actually present an opportunity for greater resources and advantages (DeRose et al. 2014; Isiugo-Abanihe 1985; Townsend et al. 2006). Parental nonresidence does not necessarily indicate a complete lack of involvement: absent parents often remain in contact with their children and caretakers, sending support and remittances (Bachan 2014; Luke and Singh 2011; Madhavan et al. 2014). Indeed, in contrast to the generally negative consequences of absence due to death and marriage-related causes, evidence suggests that parental migration—particularly paternal—is beneficial for children (DeRose et al. 2014; Townsend et al. 2002; Yabiku et al. 2012).

Applying survival analysis techniques to longitudinal demographic surveillance data from Rufiji, Tanzania, this article presents the first comprehensive description of children's exposure to parental absence through death, migration, child relocation, union dissolution, and union formation. Rather than examining one cause in isolation, this article considers all causes simultaneously, estimating the relative magnitude of each type of absence and providing a better understanding of the distinctiveness and similarity of the processes shaping these causes. Together, these estimates provide a detailed picture of Tanzanian children's risk of parental absence.

Causes of Parental Absence

This section outlines the existing literature on parental absence in sub-Saharan Africa,[1] organized around the causes examined in this article: death, marriage, migration, and child fostering.[2] A comprehensive overview of each of these processes would require more detail and space than is available here. Thus, for each cause, I describe its current status and the associated characteristics. Although children live in a diverse range of family structures not limited to residence with parents, this article focuses exclusively on the coresidence of biological parents. Even in settings characterized by diffuse parenting responsibilities, biological parents play a critical role in the socialization, development, and well-being of children (Clark and Hamplová 2013; Goody 1982; Grant and Yeatman 2014).

Parental Death

Motivated largely by high adult mortality resulting from the AIDS epidemic, a robust contemporary literature has examined increases in orphanhood, even in countries with relatively low HIV prevalence (Beegle et al. 2010a, b; Grassly and Timaeus 2005; Hill et al. 2008; Monasch and Boerma 2004). Much of the literature has focused on the ability of the extended family to absorb increasing numbers of orphans and the resulting changes in living arrangements (Foster 2000; Hill et al. 2008; Madhavan 2004; Urassa et al. 1997). In Tanzania specifically, with an HIV prevalence of 8.1 % in 1999, the prevalence of maternal and paternal orphans increased over the 1990s, from 2.0 % and 4.9 % in 1992 to 2.4 % and 5.4 % in 1999 (Bicego et al. 2003). In 2004, Hosegood et al. found even higher percentages in Kisesa, Tanzania, with 4 % of children under 15 being maternal orphans, and 8 % being paternal orphans (2004).

Little research is available on the predictors of orphanhood, but the literature on adult mortality may help us understand which children are at risk. Socioeconomic status (SES) has a well-established relationship with mortality, with more-educated, higher-status, and wealthier individuals experiencing lower mortality (Caldwell 1993; Deaton 2002; Marmot et al. 1991; Ross and Wu 1995). This relationship, however, has been complicated in sub-Saharan Africa, where Fortson (2008) found a positive relationship between HIV and education. There is a need for a better understanding of which children are at risk of orphanhood, as well as a contextualization of orphans' experience in the broader range of living arrangements and experiences of parental absence (Beegle et al. 2010a, b; Chuong and Operario 2012; Hampshire et al. 2014; Kasedde et al. 2014; Richter and Desmond 2008).

Marriage-Related Absence

I use the term "marriage-related absence" to refer to absence initiated by divorce, remarriage, and nonmarital childbearing. A rich anthropological documentation of traditional marriage customs and childbearing practices highlights marriage as a process in many sub-Saharan African societies (Comaroff and Roberts 1977; Meekers 1992).

[1]When referring to the literature on parental absence in sub-Saharan Africa, I draw from studies across the region. This is not to diminish the tremendous diversity across the region, and when possible, I refer to research and estimates from Tanzania, the country of study.

[2]I use the term "child relocation" in the analysis because I analyze maternal and paternal absence separately. Child fostering situations are included under child relocation; however, not all child relocations result in child fostering.

Historically, marital dissolution has been common in the region, with rates surpassing its Western counterparts (Lockwood 1998; Therborn 2004). By 1970, 5.5 % of Tanzanian women aged 15 or older were divorced or separated, and 18 % of marriages ended in divorce within four years (Therborn 2004). In 2004, 22 % to 24 % of reproductive aged adults in Tanzania had experienced a marital dissolution (de Walque and Kline 2012). Children's residence following divorce often depends on many factors, including the payment of brideprice, the age of the child, the lineage system followed in the area, and the remarriage of the parent (Winans 1964). Indeed, Grant and Yeatman (2014) found that children are not out-fostered immediately following divorce but rather upon the mother's remarriage. Beyond marital dissolution, age at first birth has remained relatively constant; however, age at first marriage is increasing, resulting in greater nonmarital childbearing and more children residing in mother-only households (Beegle et al. 2010a, b; Gage-Brandon and Meekers 1993; Harwood-Lejeune 2001; Lesthaeghe and Jolly 1995).

An extensive literature has examined the predictors of divorce in Western countries, generally finding that education is negatively associated with divorce, although women's employment is positively associated with divorce (Mott and Moore 1979; South and Spitze 1986; Teachman 2002). This literature has only recently been extended to settings in sub-Saharan Africa, where findings have been largely consistent with the established literature (Oya and Sender 2009; Takyi 2001; Takyi and Broughton 2006). Some scholars have argued that the resources secured from strong ties to the extended family network undermine the strength of the nuptial unit, thus promoting divorce (Reniers 2003; Takyi and Gyimah 2007). With the AIDS epidemic, divorce is used as a risk-reduction strategy, and divorce is more common among HIV-positive individuals (Grant and Soler-Hampejsek 2014; Porter et al. 2004; Reniers 2008). Finally, regarding premarital birth, some evidence suggests that educated urban women are more likely to have children outside marriage (Harwood-Lejeune 2001).

Migration

Migration can be categorized into two distinct types: circular and permanent (Collier et al. 1986; Collinson et al. 2006; Oucho 1998). Circular migration is the norm in contemporary sub-Saharan Africa, associated with temporary periods spent away earning wages and sending remittances, and subsequent returns to the home community (Dodson 2000; Oucho 1998). Although some countries in southern Africa experience high rates of international labor migration to South Africa, much of the migration in Tanzania is internal rural-rural migration or rural-urban migration associated with urbanization (Collier et al. 1986; Collinson et al. 2006; Oucho 2002; Tienda 2006). Nevertheless, the majority of the literature has focused on international migration, particularly to South Africa and European countries (Baizán et al. 2014; González-Ferrer et al. 2012; Griffiths 1997; Mezger Kveder and Flahaux 2013). Although a few studies have addressed the role of children in shaping migration decisions, children are largely ignored in the migration literature in sub-Saharan Africa (Adserà and Tienda 2012; Madhavan et al. 2012). This limitation of existing research is particularly important because female migration is becoming more common, and many children live in households with migrants. Townsend et al. (2002) estimated that in South Africa, 60 % of children live in households that include at least one migrant.

Several studies have examined the predictors of migration, with mixed findings depending on the sending and receiving contexts. Some research has found that poorer households are more likely to send migrants (Collinson et al. 2006; Oucho 2002), but perhaps contradictorily, other research has found that more-educated individuals are more likely to migrate (Posel et al. 2006; Tacoli 2001). For female migrants, Posel et al. (2006) found that older, more-educated, unmarried women are more likely to migrate. Indeed, women with young children are less likely to migrate (Townsend et al. 2002). Finally, larger households (Collinson et al. 2006) and households with elderly women (Posel et al. 2006) are more likely to send female migrants.

Fostering

"Child fostering" refers to a situation in which a child does not live with either biological parent.[3] The living arrangement may be temporary or permanent, motivated by crisis or opportunity (Akresh 2009; Castle 1995; Grant and Yeatman 2014). Fostered children may be orphaned or have living parents. Indeed, fostering may be a consequence of the three causes outlined earlier: children may be sent to live with nonparental adults in the event of parental death; nonmarital childbearing, divorce, or remarriage; or migration (Lockwood 1998). As such, children's experiences of fostering are widely varied (Verhoef and Morelli 2007). Having reviewed death, marriage, and migration, I now turn to kinship fostering as a strategy of redistribution and reciprocity across households (Goody 1982; Isiugo-Abanihe 1985).

Fosterage in sub-Saharan Africa is widespread and prevalent; in 2002, approximately 9 % of children in the region were foster children (Monasch and Boerma 2004). Within kinship fostering, specific push and pull factors influence the supply of and demand for foster children, including apprenticeship, domestic assistance, and educational opportunities (Fiawoo 1978; Goody 1982, 2005; Isiugo-Abanihe 1985). Despite concern that traditional practices of fostering are threatened by the added burden of children orphaned by the AIDS crisis, the evidence generally suggests that the extended family has largely been able to accommodate orphans and the preexisting demand for foster children (Grant and Yeatman 2012; Hosegood et al. 2007; Madhavan 2004).

Despite the prevalence of fostering, the predictors of fostering in the literature are inconsistent, perhaps because of the wide variety of types of fostering. One consistent finding is that unmarried and less-educated mothers are more likely to foster their children than their married and more-educated counterparts (Isiugo-Abanihe 1985; Lloyd and Desai 1992; McDaniel and Zulu 1996; Page 1989; Vandermeersch 2002). Mothers in households with other resident kin are less likely to foster their children because alternative caregivers are available in the household (Bledsoe and Isiugo-Abanihe 1989; Fiawoo 1978; Goody 1982). Isiugo-Abanihe found fostering to be more common among girls than boys (1985). Finally, evidence suggests that fostering practices vary by wealth: children who are fostered are from poorer households of origin, but children who are actively requested by households reside in wealthier households of destination (Castle 1995; Vandermeersch 2002).

[3]Again, the analysis refers to child relocation, rather than child fostering, because it considers maternal and paternal absence separately. When possible, I note when child relocation implies nonresidence with both parents.

Although parental death, marriage-related absence, migration, and child fostering are important causes of absence, a focus on a singular cause to the exclusion of alternatives obscures children's diverse experiences of parental absence. Different kinds of absence may follow distinct patterns and may present different advantages or disadvantages. Rather than examining one cause in isolation, this article considers all causes simultaneously, bringing into dialog a disparate literature on the various sources of absence and providing a better understanding of the distinctiveness and similarity of these causes.

Data and Methods

Data

Research Setting—Designed to calculate vital statistics in developing countries lacking national registration data, health and demographic surveillance systems (HDSS) record all vital events within a given catchment area. This article uses longitudinal data from one such site: the Rufiji Health and Demographic Surveillance System in Tanzania. Established in 1998 by the Ifakara Health Institute, the Rufiji HDSS is located in the northeast of Rufiji District, approximately 180 km from Dar es Salaam, Tanzania's largest city. The district is mainly rural, with subsistence farming the primary occupation, although the population is concentrated around four trading centers. The area's population is largely Muslim and characterized by high fertility and high mortality. Although both demographic processes are declining, the population is young, with 46 % under age 15; life expectancy remains modest, at 65 years in 2012.

The Rufiji HDSS follows a dynamic cohort of approximately 100,000 residents (roughly one-half of the district population) in 38 villages in a catchment area of 1,813 km^2. Individuals enter the cohort through initial census enumeration, birth, or in-migration, and exit through death or out-migration. Every four months, field teams visit each registered household to check the status of every member, using a combination of individual and household identification numbers, names, geographic coordinates, and community informants. At these visits, surveyors record the dates of all births, deaths, in- and out-migrations, and marital status changes that occurred since the previous visit. Detailed information on the Rufiji HDSS and HDSS more generally may be found elsewhere (Mrema et al. 2015; Mwageni et al. 1998; Sankoh and Byass 2012; Ye et al. 2012).

Although HDSS provide detailed longitudinal data unavailable from other sources in developing countries, the platform is not without its weaknesses. First, the data are not publicly available, and replication is not possible by external researchers. However, efforts are underway to anonymize and share the data (Sankoh and Byass 2012). Second, the data are not nationally representative. However, as Madhavan et al. (2012:715) have contended, nationally representative data cannot show population dynamics in the way that "localized, prospectively collected data can." No nationally representative data are available in developing country contexts that would permit the kind of detailed longitudinal analysis of children's experiences presented here. Although the data are not nationally representative, the broader social changes underway in Rufiji—urbanization, modernization, and individualization—are characteristic of the development processes in the region more generally. The results of this article are therefore relevant not only for this particular

geographic locale but also for policymakers in Tanzania and other developing countries who are trying to improve children's welfare in the face of social and economic changes that challenge traditional family forms.

Exposure Episodes and Events—Using dates of birth, death, entry, and exit, as well as household identification numbers, I construct residency episodes for all individuals. I then link child and parent residency episodes using identification numbers, generating child exposure episodes and events of parental absence. Child exposure begins at birth and ends with an event of parental absence or right-censoring. An event of parental absence is defined as the parent and child not living in the same household. This state occurs when the parent dies, the parent moves out of the household without the child, or the child migrates out of the household without the parent. Children may experience multiple events, but the vast majority (more than 96 %) experience a maximum of one event. Therefore, the analyses here examine only the first event of absence. [4] A child is right-censored in four circumstances: (1) the child turns 10; (2) the child and parent move out of the site together; (3) the child dies; or (4) the end of observation is reached (January 1, 2012).

Parental absence is decomposed into five causes: death, parental migration, child relocation, union dissolution, and union formation. Death refers to the death of the parent. Parental migration is defined as a move of the parent out of the coresidential household that does not occur within six months of a change in marital status.[5] Child relocation is defined as a move of the child out of the coresidential household that does not occur within six months of a parent's change in marital status; the child may be leaving the household in the company of the other parent, or on his/her own.[6] Union dissolution and formation are defined as a move out of the coresidential household (by the parent or the child) within six months of a divorce or marriage/remarriage, respectively. This includes formal and informal partnerships, although cohabitation accounts for less than 1 % of partnerships. Changes in union status are determined using three sources of information: dates of marriage events in the marriage records database, changes in stated marital status collected annually on the household roster, and divorce or marriage as the stated reason for migration.

Covariates—In addition to the episode and event data, this article examines differences in the risk of parental absence by a number of important covariates. (See Table 1 for descriptive statistics.) I include the basic demographic controls of child sex, birth order, and mother's and father's age at child's birth.

[4]The rarity of repeated events may be due to the definition of migration used in the site. An individual is considered a migrant when he/she is nonresident in the registered household for two consecutive visits. If the individual is still absent at the visit following the first report of absence, an out-migration form is completed, indicating the date of out-migration. Consequently, individuals must be absent for a minimum of four months in order to be classified as migrants. Absences or returns of durations less than four months are not captured.

[5]Migration may be internal (from one household in the site to another household in the site) or external (from a household in the site to somewhere outside the site).

[6]Under the cause of absence labeled as "child relocation," there are three possibilities: (1) traditional child fostering, in which the child leaves the household and both parents remain; (2) the child leaves the household of the parent under consideration, but the other parent is already absent, making it impossible to know whether the child is leaving one parent to reunite with the other or going to a different location where he/she will not reside with either parent; and (3) the child leaves the household of the parent under consideration at the same time as the other parent, making it impossible to know whether the exiting child and parent are going to the same destination and will remain coresident or instead they are going to different destinations. Because of the uncertainty regarding what happens in the second and third scenarios, I include all situations under the same cause labeled "child relocation."

I measure SES by using parental education and occupation, household wealth, and caregiving resources, including the other parent and adult kin. Parental education is measured as the highest grade completed at the time of the child's birth. Occupation is defined as the activity to which individuals devote the majority of their time, and is divided into three categories: subsistence agriculture, wage employment (including paid agricultural labor), and unemployed. Occupation data are collected annually, and the measure is included as a time-varying covariate. Models also include a time-varying measure of household wealth quintile constructed from an asset ownership index using principal components analysis (Rutstein and Johnson 2004). Asset ownership data were not collected annually.[7] As a result, values of wealth must be carried forward until a new measure is available. To ensure that the models are identifying predictors of absence, the measure of wealth must precede the event of absence; therefore, asset data are not carried backward. Missing wealth data are not imputed further, and the remaining missing cases are excluded from analysis. Finally, to measure caregiving resources, I include a time-varying indicator of coresidence of the other parent and a time-varying count measure of coresident nonparental adults aged 18 and older.[8]

Analytic Sample—For the analyses, the sample of children under study must meet two eligibility criteria: (1) be born in the HDSS catchment area between 2001 and 2011, and (2) have an identifiable and coresident mother or father at birth. The analytic sample includes only those children born in the HDSS because if a child migrates into the site or is born before surveillance began, the child may have already experienced one or more events of absence that would not be reflected in the data.

Analyses are conducted separately for maternal and paternal absence. Moreover, the analyses consider two groups of children separately: those born into two-parent households with an identifiable and coresident mother and father at birth, and those born into mother-only households with an unidentifiable father at birth. Approximately one-quarter of children born into the Rufiji HDSS have an unknown father identification number, indicating that the father did not reside in the household at the time of birth.[9] Although the reason for absence cannot be identified, mother's marital status can be used to differentiate between nonmarital births (births to a single mother and unidentifiable father) and nonresident births (births to a married mother with a nonresident father). The majority (>85 %) are nonmarital births to single mothers. I concentrate on single mothers in the analyses of maternal absence because there are not a sufficient number of nonresident births to support cause-specific analysis. Furthermore, in analyses examining predictors of father absence at birth (presented later in the article), the results differ for nonmarital and nonresident births, making it inappropriate to combine the two.

[7]Asset data were collected in 2001, 2005, 2008, 2009, 2010, and 2011.

[8]Although children usually leave home for education or marriage by the age of 18, this measure of coresident nonparental adults may include adult siblings who reside with the child. More often, the measure includes aunts, uncles, and grandparents. Lineality is certainly important, but given the available data, I am unable to differentiate between maternal and paternal kin. For children born into two-parent households, approximately 9 % of coresident adults at the time of birth are older than 40 (an approximation for grandparents). For children born into single-mother households, approximately 25 % of coresident adults at the time of birth are older than 40.

[9]Such difficulties with data regarding fathers in sub-Saharan Africa have been discussed elsewhere and should not preclude the current analysis (Hosegood and Madhavan 2010). Madhavan et al. (2012) found similar percentages for a South African data set.

Table 1 presents descriptive statistics for the analytic samples. Single mothers, on average, are younger, more educated, and have fewer children than mothers in the two-parent sample. Furthermore, they are less likely to be employed or involved in subsistence agriculture and are more likely to be unemployed (including in school). Single mothers live in households with an additional 1.5 adults, suggesting that they reside with their own parents.

Methodology

This article employs two survival analysis methodologies: Kaplan-Meier estimation and piecewise exponential regression. To investigate children's risk of parental absence, the Kaplan-Meier method of estimating the survivor function is implemented on all children for first events. I use this method to estimate the percentage of children experiencing a first event of parental absence by age 10 and the average number of years spent continuously residing with the parent.[10] Using a competing risks framework, I estimate the cumulative incidence of absence by cause. For children born into two-parent households, the analytic samples for the Kaplan-Meier estimates are 2,114 first events to 22,669 exposed child–mother pairs and 4,376 first events to 23,023 exposed child–father pairs. The analyses also consider 1,454 first events to 7,577 exposed child-single mother pairs (Table 1).

The Kaplan-Meier method does not yield estimates of the hazard function. Therefore, the second set of analyses rely on semiparametric estimation of piecewise exponential models, dividing exposure episodes into age intervals and assuming that the baseline hazard is constant in each interval.[11] The choice of intervals depends on several factors; importantly, an adequate number of events must occur within each interval. I use yearly intervals when possible, but I combine intervals when necessary to ensure that at least 10 events occurred in each. The age intervals for each model are indicated in the final row of upcoming Tables 2, 3, and 5. The model is expressed as follows:

$$\lambda_{ij}=\lambda_j exp\left\{\mathbf{X}_{ij}\beta\right\},$$

where λ_{ij} is the hazard of individual i in interval j, λ_j is the baseline hazard in interval j assumed to be constant, and X_{ij} is a vector of time-constant and time-varying covariates.

The Kaplan-Meier estimation is conducted for all children. However, this presents a problem for estimating standard errors because the experience of parental absence is not independent across children.[12] Inclusion of a random effect for the parent would not sufficiently correct for this dependence because the events may be perfectly correlated across children (as with parental death). For the piecewise exponential regression analyses, I address this dependence by randomly selecting one child per parent and applying probability weights by sibship size (the inverse of the probability that the child was selected from his/her sibship).[13] As analyses are conducted separately for maternal and paternal absence, sibships are defined by

[10]Continuous residence refers to coresidence with no absences lasting four months or longer. Absences of less than four months are not captured in the data and are considered continuous coresidence.

[11]I use the piecewise exponential model rather than the Cox model because I want to estimate the hazard function itself. In robustness checks, I estimate Cox regressions, and the findings are essentially unchanged (results not shown).

[12]This dependence is not unique to the piecewise exponential model. I include the entire sample of children in the Kaplan-Meier estimates because I am interested primarily in precise estimation of the survivor function, not in the standard errors.

shared maternity and paternity, respectively. For children born into two-parent households, this results in an analytic sample of 1,319 first events to 12,207 exposed child–mother pairs and 2,555 first events to 11,123 exposed child–father pairs. For children born into single-mother households, this results in a sample of 1,144 first events to 6,230 exposed child–single-mother pairs (Table 1). Finally, to investigate the predictors of father absence at birth, I estimate logistic regression on the two-parent and mother-only samples combined.

Results

Describing Parental Absence

Risk of Absence—Using Kaplan-Meier estimation of the survival function for the sample of children born into two-parent households, Figs. 1 and 2 present the proportion of children who never experience absence in the lightest area of the graph, labeled as “Present.” The dividing line between this area and the areas above is the Kaplan-Meier survival curve for overall absence; 25 % and 40 % of children experience maternal and paternal absence by age 10, respectively. The risk of maternal absence for children born into single-mother households is markedly higher than the risk for children born into two-parent households; almost 70 % experience any maternal absence by age 10 (Fig. 3).

To get a better sense of how these overall figures translate into the childhood experience of parental absence, I estimate the average duration of time that a child spends living continuously with the parent from birth to age 10. Children born into two-parent households who experience an event of absence spend an average of 8.8 years living with the mother and 7.8 years living with the father. However, this average obscures the permanence of absence experienced by many children; approximately 60 % of children who experience maternal or paternal absence never experience a return of the parent while under observation.[14] Most absence occurs early in childhood, with one-half of children who experience parental absence doing so by age 5 for maternal absence and by age 4 for paternal absence.[15] For children born into single-mother households, maternal absence occurs earlier and is of a longer duration; the 70 % of children who experience maternal absence spend an average of 6.6 years residing with the mother, and one-half experience maternal absence by age 4.5.[16]

The age pattern of absence can be examined more closely by fitting a piecewise exponential model that includes covariates for age intervals only (Fig. 4). For children born into two-parent households, the shape of the hazard is different for maternal and paternal absence; the hazard of maternal absence increases with age, but the hazard of paternal absence declines almost monotonically from birth. For children born into single-mother households, the hazard of maternal absence is higher at every age than that for children born into two-parent

[13]In robustness checks (not shown), I estimate the models with different strategies for addressing this dependence, including shared frailty terms to account for multiple children of the same parent, randomly sampling children but not including weights, and including all children without attempting to address the dependence among siblings. The conclusions are unchanged.
[14]Temporary returns of less than four months are not captured in the data.
[15]The results are not shown, but this estimate can be inferred in Figs. 1 and 2 as the median age of absence for children who ever experience absence.
[16]The results are not shown, but this estimate can be inferred in Fig. 3 as the median age of absence for children who ever experience absence.

households. This hazard increases rapidly in the first four years of childhood and remains high from ages 5 to 10.

Absence by Cause—Although examining overall parental absence is informative, the predictors and consequences of absence may differ depending on the cause. This section examines parental absence due to parental death, parental migration, child relocation, union dissolution, and union formation. Figures 1–3 present the cumulative proportion of children experiencing each type of absence by age estimated from a competing risks Kaplan-Meier model. Considering union dissolution and formation together as marriage-related causes, Figs. 1–3 show that parental absence due to death (in black) constitutes the smallest proportion of children's overall exposure to parental absence. Although the cause structure varies across groups, death is consistently the least common cause of absence: 2.4 %, 6.2 %, and 4 % of children experience maternal, paternal, and single-mother absence due to death by age 10, respectively.

Maternal absence among children born into two-parent households is most commonly caused by mother's changes in marital status. However, children are much more likely to experience maternal absence due to union dissolution (7.7 %) than to union formation (1.8 %). The second leading cause of maternal absence is child relocation. Recall that this cause ignores the residential status of the other parent, and it is possible that when the child leaves the household of the mother, he/she is leaving with the father, and vice versa. Three-quarters of children who experience maternal absence through child relocation are leaving the mother and father simultaneously, and an additional 10 % were already living apart from the father. Maternal migration is the third ranking cause of maternal absence.

The decomposition of paternal absence by cause differs from maternal absence. Among children born into two-parent households, child relocation is by far the leading cause of paternal absence. Again, this cause ignores the residential status of the other parent, and only 20 % of children are leaving both the father and the mother, whereas more than half of these children are leaving their fathers in the company of their mothers.[17] Paternal migration and marriage-related causes make up nearly the same share of children's experience of paternal absence. However, in contrast to maternal marriage-related absence, paternal absence due to union formation[18] is more likely than that due to union dissolution (5.8 % vs 1.4 %).

Finally, for children born into single-mother households, the cause structure of absence again looks quite different compared with maternal and paternal absence for children born into two-parent households.[19] Maternal migration is the leading cause of absence, accounting for more than half of the overall experience of absence. Union formation and child relocation account for nearly the same share of children's experience of maternal absence.

[17]It is possible that this move of the child and mother out of the household of the father represents an informal separation or the start of a union dissolution, even though no change in marital status is reported. However, the fathers remain under observation, and few of them report a union dissolution within five years following the exit of the child and mother.
[18]This does not include polygamous unions or marriages to additional wives while the father is still married to the mother.
[19]Because all single mothers are unmarried at birth, I do not consider union dissolution as a cause of absence for children born to single mothers.

Predictors of Absence

The preceding section details the risk, duration, and type of absence that children experience. However, these estimates do not identify which children face the highest risk. This section considers the demographic and socioeconomic predictors of the risk of parental absence, highlighting variation in the predictors between maternal and paternal absence across causes.

Children Born Into Two-Parent Families—There are several consistent predictors of both maternal and paternal absence. First, the piecewise exponential models in Tables 2 and 3 include an indicator variable for child's gender. With the exception of child relocation, male and female children are at equal risk of parental absence. For both maternal and paternal absence due to child relocation, male children are significantly less likely to experience absence, with a 40 % and 15 % lower risk, respectively. These percentages are consistent with the child-fostering literature, which has found that girls are more likely to be fostered to help other relatives with domestic activities (Castle 1995; Goody 1982; Isiugo-Abanihe 1985).

Coresidence of the other parent is protective in terms of maternal and paternal death and migration. The risks of maternal death and migration are approximately 70 % lower if the father is coresident. If the mother is coresident, the risk of paternal death is 20 % lower, and the risk of paternal migration is 50 % lower. In contrast to the protective effect of coresidence of the other parent, coresidence of nonparental adults is associated with an increased risk of parental migration. Each additional coresident adult is associated with a 9 % and a 6 % greater risk of maternal and paternal migration, respectively. Similarly, children with more coresident adults are more likely to experience parental absence due to union dissolution, with increases of 6 % and 8% in the hazard of maternal and paternal absence, respectively, for each additional coresident adult. Importantly, these associations between coresident adults and parental absence are significant and are not mediated by household wealth.

Turning to maternal and paternal absence separately, maternal education is positively associated with children's risk of maternal absence due to child relocation. For each additional year of mother's education, the hazard of maternal absence due to child relocation is 4 % higher (Table 2). This is in contrast to most child-fostering studies, which have found that less-educated mothers are more likely to foster their children (Isiugo-Abanihe 1985; Lloyd and Desai 1992; McDaniel and Zulu 1996; Page 1989; Vandermeersch 2002). This discrepancy may be due to the low levels of education in this setting or to changes in female migration patterns (Posel et al. 2006). Maternal education is not associated with other types of maternal absence.

The importance of differentiating between union dissolution and union formation is illustrated through the differential associations with occupation: children of employed mothers face a 42 % lower risk of maternal absence due to dissolution, and children of agricultural mothers face a 53 % lower risk of maternal absence due to formation. The results for wealth vary across causes of maternal absence. Both overall and by cause, there is no evidence of a wealth gradient in absence. There is suggestive evidence that the hazard of

absence due to union formation is lower for children in wealthier households, although the difference between quintiles is statistically significant for only the highest compared with the lowest. Finally, the risk of maternal absence due to child relocation is negatively associated with the number of coresident adults. This is consistent with the literature on fostering as a coping mechanism in resource-constrained environments, whereby mothers are less likely to foster their children if they have other kin in the household to help them care for the children (Bledsoe and Isiugo-Abanihe 1989; Fiawoo 1978; Goody 1982). Supplementary analyses provide suggestive evidence of an interaction between the number of coresident adults and the child's age, with the negative association declining as the child ages, although the interaction is not statistically significant (results not shown but available on request).

Similar to maternal education, paternal education is associated with only one cause of absence (Table 3). Paternal education is negatively associated with the risk of paternal absence due to dissolution, with each additional year of father's education associated with a 4 % lower risk. Paternal occupation in subsistence agriculture, compared with unemployment, is protective in terms of the risk of paternal absence due to migration and child relocation. Unlike with maternal absence, there is some evidence of a wealth gradient in paternal absence overall; the risk of paternal absence due to all causes combined declines significantly across wealth quintiles. However, examining each cause independently demonstrates important variation: there is no significant association between wealth and any cause-specific risk of paternal absence, although the direction of the association is consistent for paternal migration. Finally, children with more coresident adults face a higher risk of paternal absence due to union formation.

Children Born Into Single-Mother Families—Before examining the predictors of maternal absence, I consider paternal absence at birth. As discussed in the Data section, approximately 25 % of children born in the Rufiji HDSS do not have identifiable fathers. Approximately 85 % of children with unidentifiable fathers are born to unmarried mothers, suggesting that the majority of children with nonresident fathers at birth experience absence due to nonmarital child-bearing. The remainder may have married parents who live apart, a common consequence of labor market structures in the area. Regardless of the reason, it can be reasonably assumed that these fathers are not resident in the same household as the child from birth until the end of observation. Including children with unidentifiable fathers and assuming that they experience absence at birth increases the estimate of percentage of children experiencing paternal absence from 40 % to 58 % by age 10 (Fig. 5).

Table 4 presents logistic regression results for the odds of having an unidentifiable father at birth. In the second and third columns, I differentiate between being born to an unmarried mother and unidentifiable father (nonmarital birth), and being born to a married mother and unidentifiable father (nonresident birth). Children with younger, more-educated mothers are more likely to have an unidentifiable father at birth, and this relationship holds for nonmarital births as well. On the contrary, children with older mothers are more likely to be nonresident births. Finally, there is a significant wealth gradient in the odds of having an unidentifiable father at birth, as well as being a nonmarital birth; there is no wealth gradient

in the odds of being a nonresident birth. These results highlight the importance of restricting the analysis to nonmarital births.

As such, the analyses of the predictors of maternal absence for children born with unidentifiable fathers are restricted to nonmarital births, or children born into single-mother families (Table 5). Consistent with the logistic regression results, children with older mothers are less likely to experience maternal absence due to all causes combined, as well as for each cause except death. There are no observed associations between maternal education or occupation for the cause-specific analyses of single-mother absence. Notably, among children born into single-mother households, there is no association between wealth and maternal absence overall or due to any cause individually (Table 5). Interestingly, there is a positive but nonsignificant wealth gradient for maternal absence due to child relocation. Although the results are not significant, the direction of the association highlights the variation in the predictors of absence for maternal absence for children born to two-parent families compared with children born to single mothers. Finally, consistent with the results for children born to two-parent families, the coresidence of additional adults is associated with a significantly lower hazard of maternal absence due to child relocation. Again, this suggests that when kin are available to help with childrearing, mothers are less likely to foster their children.

Discussion

Parental absence is common in Rufiji, Tanzania, where 25 % and 40 % of children born into two-parent families experience maternal and paternal absence by age 10, respectively. These estimates are roughly consistent with figures from other studies in Tanzania and across the region (see Monasch and Boerma 2004 for cross-sectional estimates in Tanzania; also see Chuong and Operario 2012; Hampshire et al. 2014; Marteleto et al. 2012). Strikingly, the majority of children born into single-mother households—all of whom have an absent father at birth—also experience maternal absence by the age of 10.

Absence occurs early, usually by age 5; this finding is particularly noteworthy, given that other studies have demonstrated the importance of early childhood in shaping children's health and development (Brooks-Gunn and Duncan 1997; Côté et al. 2009; Duncan et al. 1994). Furthermore, for the majority of children experiencing absence, it is long-lasting, with few parental returns before age 10. This is contrary to recent findings on family instability in the region, which document multiple spells of absence throughout childhood (Goldberg 2013; Marteleto et al. 2012). This discrepancy may be due to differences in the settings; both cited studies examined South Africa, which has a particular pattern of circular labor migration. In addition, the permanence of absence observed here may be due to an inability to capture absences and returns of short duration in the Rufiji HDSS because of the definition of migration used in the site.

The cause composition of absence depends on the parent examined as well as the family structure into which the child is born. Nevertheless, across two-parent and single-mother households and maternal and paternal absence, parental death is the least common cause of absence. Although the literature on parental absence emphasizes orphanhood, the majority

of children who experience parental absence do so for other reasons. Migration and marriage practices play an important role in shaping patterns of parental absence. Undoubtedly, these are qualitatively different kinds of absence, and there is reason to suspect that the permanent absence of a parent through death is more detrimental to children than a temporary absence due to fostering or migration. However, because social support programs for "vulnerable" children are typically geared toward orphans, this kind of absence may actually be associated with increases in resources available for children. Furthermore, the analyses here suggest that the other causes of absence also result in permanent nonresidence of the parent.

The demographic and socioeconomic patterns in children's risk of parental absence depend on the group at risk, the parent of interest, and the cause of absence. Caregiving resources, as measured by the number of coresident adults, are positively associated with volitional types of absence over which the parent has control, such as migration, union dissolution, and union formation. This finding suggests that the availability of caregiver substitutes may play a role in influencing parental decisions and ability to leave the household. Alternatively, additional adults may move in to the household in preparation for the anticipated departure of a parent. More broadly, these findings suggest that parents factor the well-being and circumstances of their children into their decisions to absent themselves. In contrast, children in households with more coresident adults are less likely to experience maternal absence due to child relocation. Such variation in the association between kin support and absence underscores the importance of examining parental absence by cause. The analyses provide a detailed view of the relative magnitude of each type of absence as well as a better understanding of the distinctiveness and similarity of the processes leading to each. These findings demonstrate the importance of considering individual causes of absence in relation to one another, and can help guide future research on the consequences of absence for children's well-being.

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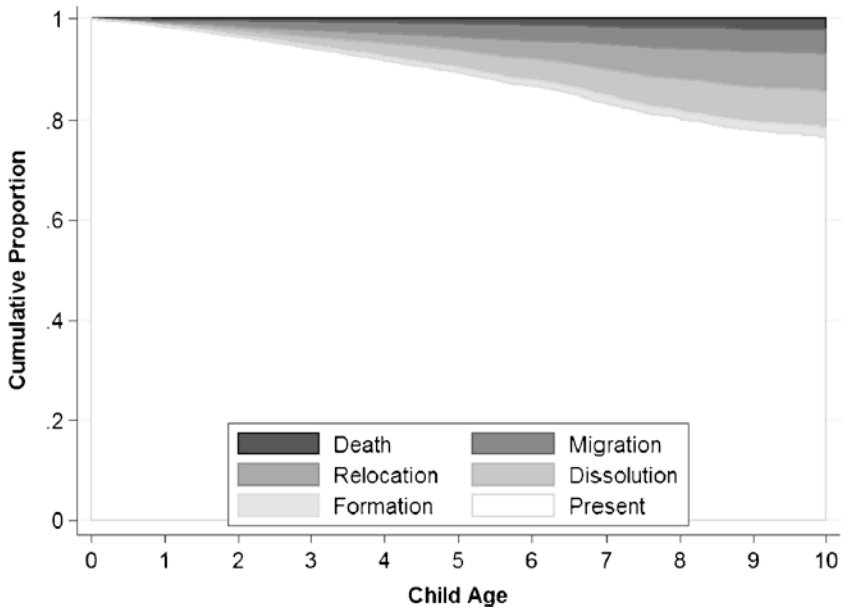

Fig. 1.
Maternal absence by cause: Children born into two-parent households

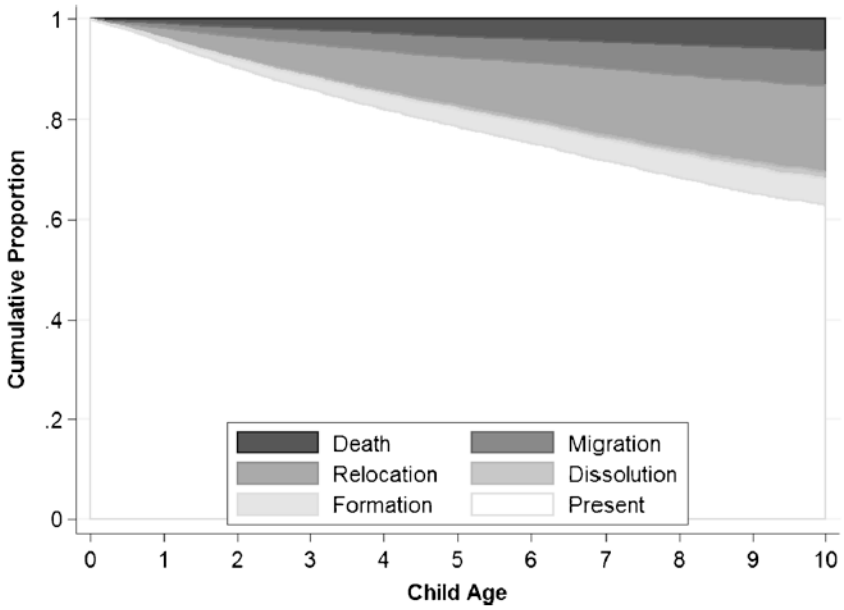

Fig. 2.
Paternal absence by cause: Children born into two-parent households

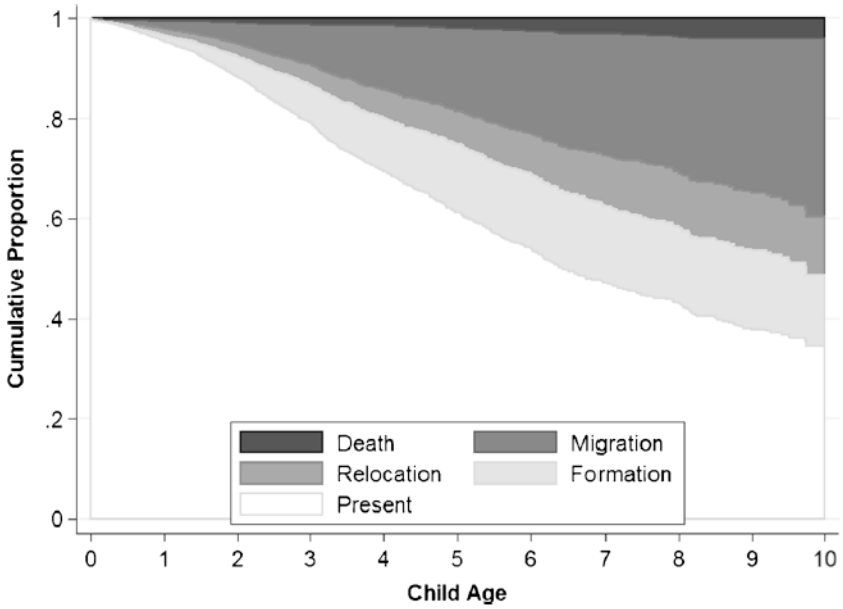

Fig. 3.
Maternal absence by cause: Children born into single-mother households

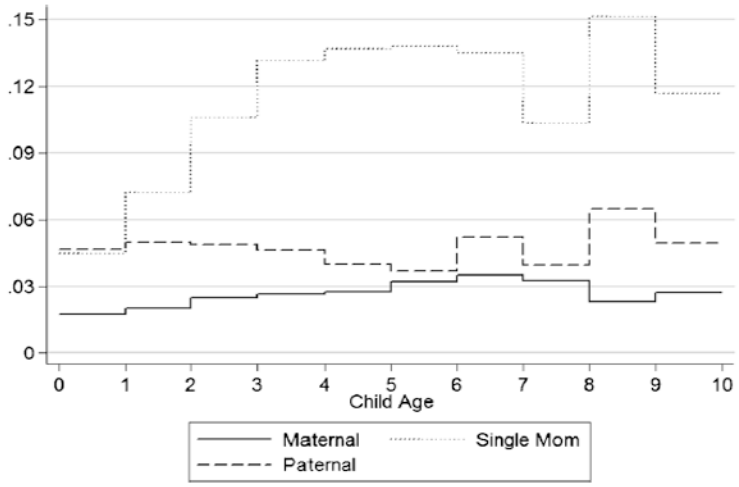

Fig. 4.
Hazard of parental absence by age: Piecewise exponential estimates

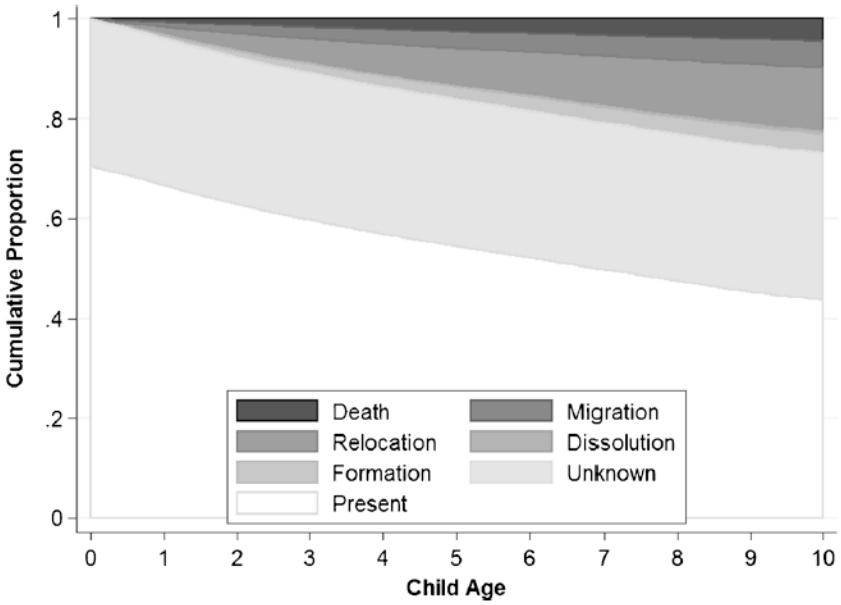

Fig. 5.
Paternal absence by cause, including children with nonresident fathers at birth

Table 1

Sample descriptive statistics: Percentages or means, with standard errors in parentheses

	Kaplan-Meier			Piecewise Exponential		
	Two-Parent		Single-Mother	Two-Parent		Single-Mother
	Maternal	Paternal	Maternal	Maternal	Paternal	Maternal
Child Characteristics						
Male (%)	50	50	51	51	49	51
Birth order	4.14 (2.45)	4.13 (2.45)	2.19 (1.81)	4.13 (0.02)	4.13 (0.02)	2.20 (0.02)
Parental Characteristics at Birth						
Mother's age	27.91 (7.21)	28.02 (7.39)	22.16 (6.91)	27.89 (0.04)	28.01 (0.04)	22.17 (0.07)
Father's age	37.44 (10.98)	37.43 (10.99)	—	37.40 (0.07)	37.39 (0.07)	—
Mother's years of schooling	3.55 (3.58)	3.56 (3.58)	4.70 (3.58)	3.55 (0.02)	3.53 (0.02)	4.70 (0.04)
Father's years of schooling	4.91 (4.10)	4.92 (4.11)	—	4.90 (0.02)	4.92 (0.02)	—
Agriculture (%)	58	46	18	58	46	18
Employed (%)	7	25	26	7	25	25
Household Characteristics at Birth						
Quintile of asset ownership (%)						
Lowest (ref.)	18	18	18	18	18	19
Low	21	21	19	21	21	18
Middle	23	23	21	23	22	21
High	21	21	22	21	21	22
Highest	17	17	20	17	18	20
Number coresident adults	1.46 (2.05)	1.45 (2.05)	3.23 (2.44)	1.45 (.01)	1.45 (0.01)	3.23 (0.03)
Children	22,669	23,023	7,577	11,556	10,478	5,805
Events	2,114	4,376	1,454	1,225	2,279	1,099

Note: Statistics were calculated using weights for piecewise exponential samples.

Table 2

Hazard ratios for the risk of first maternal absence by cause: Children born into two-parent families

	All Cause	Death	Migration	Relocation	Dissolution	Formation
Male Child	0.99 (0.07)	1.30 (0.31)	1.14 (0.17)	0.66** (0.10)	1.15 (0.13)	1.51 (0.38)
Child's Birth Order	0.91** (0.03)	0.94 (0.11)	0.89 (0.06)	0.92 (0.05)	0.90* (0.05)	1.01 (0.18)
Mother's Age	0.99 (0.01)	1.05 (0.04)	0.98 (0.02)	1.00 (0.02)	0.97 (0.02)	0.92 (0.06)
Father's Age	0.99 (0.00)	0.99 (0.01)	1.00 (0.01)	1.00 (0.01)	0.99 (0.01)	0.98 (0.02)
Mother's Education	1.00 (0.01)	1.02 (0.03)	0.97 (0.02)	1.03 (0.02)	0.98 (0.02)	1.07 (0.04)
Father's Education	0.99 (0.01)	0.97 (0.03)	0.98 (0.02)	1.00 (0.02)	1.00 (0.01)	0.99 (0.03)
Mother's Occupation (unemployed)						
Agriculture	1.04 (0.10)	1.15 (0.38)	0.95 (0.18)	1.13 (0.23)	1.33 (0.22)	0.45** (0.14)
Employed	1.06 (0.17)	1.37 (0.73)	1.11 (0.33)	1.08 (0.37)	0.60 (0.17)	1.52 (0.61)
Wealth Quintile (lowest)						
Low	1.14 (0.14)	1.04 (0.41)	0.96 (0.25)	1.69* (0.43)	1.12 (0.23)	0.74 (0.27)
Middle	1.25 (0.15)	0.72 (0.29)	1.30 (0.33)	1.95** (0.49)	1.15 (0.23)	0.78 (0.28)
High	1.11 (0.14)	0.69 (0.27)	1.03 (0.27)	1.48 (0.39)	1.24 (0.25)	0.60 (0.20)
Highest	1.06 (0.14)	1.02 (0.41)	1.08 (0.30)	1.21 (0.35)	1.33 (0.28)	0.40* (0.18)
Father Coresident	0.30*** (0.08)	0.47 (0.26)	0.17*** (0.04)	0.27*** (0.10)	0.44** (0.13)	0.17 (0.23)
Coresident Adults	1.05** (0.02)	1.11* (0.05)	1.16*** (0.03)	0.84** (0.05)	1.08*** (0.02)	1.09 (0.06)
Children	11,556	11,556	11,556	11,556	11,556	11,556
Events	1,225	114	278	309	420	104
Deviance	19,657.36	2,451.96	5,255.13	7,078.39	7,783.09	2,169.01
Child Age Intervals	*y* [0–10]	*y* [0 –5], (5–10]	*y* [0 –6], (6–10]	*y* [0 –7], (7–10]	*y* [0–8], (8–10]	*y* [0–5], (5 –10]

Notes: Results are for piecewise exponential models. Robust standard errors, including weights for sibship size, are shown in parentheses. y indicates yearly age intervals for the range specified.

* $p < .05$;

** $p < .01$;

*** $p < .001$

Table 3

Hazard ratios for the risk of first paternal absence by cause: Children born into two-parent families

	All Cause	Death	Migration	Relocation	Dissolution	Formation
Male Child	0.90 (0.05)	1.09 (0.18)	0.98 (0.12)	0.81 * (0.07)	1.09 (0.14)	0.92 (0.12)
Child's Birth Order	0.91 *** (0.02)	1.01 (0.05)	0.99 (0.05)	0.87 *** (0.03)	0.88 ** (0.04)	0.85 * (0.05)
Father's Age	1.01 *** (0.00)	1.05 *** (0.01)	1.00 (0.01)	1.02 *** (0.01)	1.00 (0.01)	0.99 (0.01)
Mother's Age	0.98 ** (0.01)	1.01 (0.02)	0.97 (0.02)	0.98 (0.01)	0.96 * (0.02)	0.95 * (0.02)
Father's Education	1.00 (0.01)	1.01 (0.02)	1.01 (0.02)	1.00 (0.01)	0.96 * (0.02)	0.96 (0.02)
Mother's Education	1.01 (0.01)	0.94 * (0.02)	1.04 (0.02)	1.02 (0.01)	1.02 (0.02)	1.01 (0.02)
Father's Occupation (unemployed)						
Agriculture	0.82 * (0.07)	1.04 (0.29)	0.74 (0.13)	0.82 (0.11)	1.17 (0.24)	0.93 (0.19)
Employed	0.98 (0.09)	1.59 (0.46)	0.85 (0.16)	0.98 (0.14)	1.26 (0.28)	1.02 (0.22)
Wealth Quintile (lowest)						
Low	0.89 (0.08)	0.65 (0.16)	1.01 (0.21)	0.97 (0.14)	0.87 (0.17)	0.83 (0.18)
Middle	0.91 (0.08)	0.73 (0.18)	0.96 (0.19)	0.99 (0.13)	1.04 (0.21)	0.93 (0.19)
High	0.81 * (0.08)	0.55 * (0.15)	0.82 (0.18)	0.88 (0.12)	1.02 (0.21)	1.03 (0.22)
Highest	0.81 * (0.09)	1.04 (0.27)	0.77 (0.17)	0.78 (0.13)	0.95 (0.24)	0.90 (0.23)
Mother Coresident	1.13 *** (0.03)	0.83 *** (0.03)	0.87 (0.12)	1.19 * (0.03)	1.06 (0.07)	1.07 (0.07)
Coresident Adults	1.03 * (0.01)	1.05 (0.04)	1.08 ** (0.03)	0.98 (0.02)	1.06 * (0.03)	1.06 * (0.03)
Children	10,478	10,478	10,478	10,478	10,478	10,478
Events	2,279	231	433	897	380	338
Deviance	34,136.56	4,879.17	9,704.39	17,706.96	7,714.89	6,641.78
Child Age Intervals	*y* [0–10]	*y* [0–8], (8–10]	*y* [0–7], (7–10]	*y* [0–6], (6–10]	*y* [0–8], (8–10]	*y* [0–10]

Notes: Results are from piecewise exponential models. Robust standard errors, including weights for sibship size, are shown in parentheses. y indicates yearly age intervals for the range specified.

* $p < .05$;

** $p < .01$;

*** $p < .001$

Table 4

Odds ratios for unidentifiable father at birth

	All Births	Nonmarital Births	Nonresident Births
Male Child	1.05 (0.05)	1.09 (0.05)	0.91 (0.08)
Child's Birth Order	0.82*** (0.02)	0.79*** (0.02)	0.89*** (0.03)
Mother's Age	0.98*** (0.01)	0.95*** (0.01)	1.07*** (0.01)
Mother's Education	1.06*** (0.01)	1.08*** (0.01)	0.99 (0.01)
Mother's Occupation (unemployed)			
Agriculture	0.44*** (0.02)	0.30*** (0.02)	2.08*** (0.24)
Employed	1.73*** (0.12)	1.58*** (0.11)	1.74*** (0.25)
Wealth Quintile (lowest)			
Low	0.65*** (0.05)	0.66*** (0.06)	0.77 (0.12)
Middle	0.69*** (0.05)	0.66*** (0.05)	0.91 (0.13)
High	0.70*** (0.05)	0.71*** (0.06)	0.84 (0.12)
Highest	0.53*** (0.04)	0.51*** (0.04)	0.89 (0.13)
Coresident Adults	1.32*** (0.01)	1.32*** (0.01)	1.13*** (0.02)
Children	14,019	14,437	14,437
Absent Fathers	6,143	5,333	810
Pseudo-R^2	.20	.27	.04

Notes: Results are from logistic regression models. Robust standard errors, including weights for sibship size, are shown in parentheses.

*** $p < .001$

Table 5

Hazard ratios for the risk of first maternal absence by cause: Children born into single-mother families

	All Cause	Death	Migration	Relocation	Formation
Male Child	0.93 (0.06)	0.87 (0.28)	1.09 (0.12)	0.88 (0.15)	0.80 (0.09)
Child's Birth Order	1.02 (0.04)	1.35 (0.22)	1.02 (0.06)	1.01 (0.09)	0.89 (0.07)
Mother's Age	0.92*** (0.01)	0.97 (0.05)	0.91*** (0.01)	0.96 (0.02)	0.89*** (0.02)
Mother's Education	1.00 (0.01)	0.99 (0.04)	1.01 (0.02)	1.02 (0.03)	0.99 (0.02)
Mother's Occupation (unemployed)					
Agriculture	1.19 (0.11)	0.44 (0.22)	1.08 (0.16)	1.06 (0.25)	1.53** (0.23)
Employed	1.29** (0.12)	1.36 (0.57)	1.07 (0.16)	1.49 (0.31)	1.40* (0.20)
Wealth Quintile (lowest)					
Low	1.05 (0.12)	0.79 (0.41)	0.91 (0.17)	1.12 (0.32)	1.03 (0.19)
Middle	1.04 (0.12)	1.11 (0.59)	1.16 (0.20)	1.07 (0.29)	0.88 (0.16)
High	1.09 (0.12)	0.85 (0.54)	1.25 (0.22)	1.08 (0.29)	0.95 (0.17)
Highest	1.00 (0.12)	1.58 (0.75)	0.91 (0.17)	1.05 (0.30)	0.95 (0.17)
Coresident Adults	0.94*** (0.01)	1.01 (0.06)	0.98 (0.02)	0.69*** (0.05)	0.99 (0.02)
Children	5,805	5,805	5,805	5,805	5,805
Events	1,099	57	448	195	399
Deviance	10,470.55	889.46	4,937.97	2,631.14	4,467.98
Child Age Intervals	*y* [0–8], (8–10]	*y* [0–1], (1–3], (3–10]	*y* [0–7], (7–10]	*y* [0–8], (8–10]	*y* [0 –6], (6–10]

Notes: Results are from piecewise exponential models. Robust standard errors, including weights for sibship size, are shown in parentheses. y indicates yearly age intervals for the range specified.

* $p < .05$;

** $p < .01$;

*** $p < .001$

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