

DOES MOTHERS' MIGRANT STATUS AFFECT CHILD FOSTERING IN SUB-SAHARAN AFRICA?: EVIDENCE FROM TWO INFORMAL SETTLEMENTS IN NAIROBI, KENYA

Cassandra Cotton

Ph.D. Candidate

Department of Sociology & Centre on Population Dynamics

McGill University

Donatien Beguy

Research Scientist

African Population and Health Research Center

Draft: Please do not circulate or cite without permission of the authors.

Correspondence: Cassandra Cotton, Stephen Leacock Building, Room 713, 855 Sherbrooke Street West, Montreal, Quebec, H3A 2T7
Email: cassandra.cotton@mail.mcgill.ca

Abstract:

Children across sub-Saharan Africa reside in a variety of different living arrangements. In slum communities with high rates of circular migration and urban poverty, parents may choose alternative living arrangements for young children other than co-residence. Despite the importance of residence for child well-being, we know relatively little about the number of children out-fostered from slums and with whom they reside. Using birth history data from the Nairobi Urban Health and Demographic Surveillance System collected between 2005 and 2009, we will determine percentages of children under 15 living away from their mothers by mothers' migrant status and duration of stay. We use logistic regression to analyze characteristics of migrant and non-migrant mothers in order to determine what may influence child fosterage out of Nairobi's slum settlements. We find approximately 15% of children under age 15 live apart from their mothers, with mothers' socio-demographic characteristics, child's age, and mother's migrant status associated with child fostering.

Introduction

Across sub-Saharan Africa, children's living arrangements take a variety of forms. Children may reside in nuclear or extended family households, with or without fathers, often but not always with mothers. The mother-child bond is often perceived to be one of the strongest and most important kinship ties, with any separation of mother and child viewed as nonstandard or unusual from a Western, nuclear family-based focus. However, multiple studies in diverse contexts have identified the occurrence of child fostering or circulation,¹ indicating the phenomenon is not as rare as may be thought and is often used as a comparable care arrangement to mothers' care (Bledsoe & Brandon 1992).

Despite the importance of child residence – both in terms of location and primary caregiver – for child health and development, few studies have examined how children's living arrangements may be affected and determined by mother's migration. In many African contexts where mobility is high and rising for both women and children, understanding the dimensions of child fostering as it relates to migration is important in informing family and social policy. While some research has provided data on child fostering both for orphaned and non-orphaned children (Grant & Yeatman 2012; Monasch & Boerma 2004), rarely is migration factored into the analysis.

In this paper, we seek to determine how mothers' migrant status – as a non-migrant, a long-term migrant, or a recent migrant – affect whether women living in the slums of Nairobi, Kenya report having non-resident children, and what factors determine maternal-child separation when mothers reside in the slum settlements.

Children's Living Arrangements in sub-Saharan Africa

Child fostering, referring here to children who do not live with their biological mothers, is a common and historically-grounded phenomenon across much of sub-Saharan Africa. Unlike the Western conception of fostering, which generally considers fostered children to be those who have been abandoned or whose parents are unable or unwilling to care for them, fostering in many African contexts is characterized by significant fluidity within kinship groups. As Lloyd and Duffy (1995) note, "the fact of parent-child separation does not necessarily reflect lack of parental commitment to children." (1995: 84). In fact, fostering in many sub-Saharan African countries often fits into wider kinship obligations and ties, and parents – particularly mothers – do not typically rescind parental rights and responsibilities permanently.

Fostering and child circulation in West Africa has been paid significant attention in the literature and thus has been perceived as being a larger-scale phenomenon in this region versus the rest of the continent. Where data have been available, however, research has identified the occurrence

¹ Throughout this paper, we use the term "child fostering" or "fosterage" to refer to children in informal, typically kin-based care arrangements, which may be perceived by all involved as a temporary measure or as a more long-term solution to maternal absence. Institutional foster care, in the form of orphanages or formal foster home arrangements, are not discussed in this paper.

of fostering elsewhere in sub-Saharan Africa. McDaniel and Zulu (1996) note that levels of non-maternal residence vary across the continent, from lows of 3% in Sudan to highs of 27% in Namibia, with southern Africa as a region having higher percentages of children living away from their mothers. Lloyd and Desai (1992) also find variation between countries and regions, with only 4.8% of children living apart from mothers in Burundi to 25.3% and 27.6% of children away from their mothers in Liberia and Botswana, respectively. They identify patterns of fostering by age, with relatively low percentages of young children (aged 0 to 4 years) living away from mothers compared to older children (Lloyd & Desai 1992).

Work focusing specifically on West Africa in the 1980s suggested child fostering was a well-recognized and widespread strategy used by families across the region, with between 25% and 40% of mothers indicating at least one child living elsewhere (Isiugo-Abanihe 1985). Page (1989) finds larger percentages of children living away from mothers in West Africa (11-22%) compared to East Africa (6-13%), with significant variation within different areas of individual countries and among different ethnic groups. Fosterage among the Mende in Sierra Leone includes nearly one-quarter of children under five, with likelihood of fosterage increasing as children age (Bledsoe 1990; Bledsoe & Isiugo-Abanihe 1989), indicating widespread and normalized use of fosterage strategies.

In Kenya, however, research dating from the 1980s and 1990s has indicated relatively lower percentages of children who are fostered compared to other regions of sub-Saharan Africa, from 6.8% to 12.6% of children under age 15 (Monasch & Boerma 2004; McDaniel & Zulu 1996; Lloyd & Desai 1992; Page 1989). Few studies have analyzed the specific rates of fostering in Nairobi; research by Page (1989) indicated that in Central Province including Nairobi, fostering rates rose from 6% of 0 to 4 year olds to 11.2% of 5 to 9 year olds and 18.3% of 10 to 14 year olds. In Kenya as a whole, the children of women living in urban areas have increased probability of living apart from their mothers (Lloyd & Desai 1992). Odds of living away from parents are also higher in some other urban areas of sub-Saharan Africa compared to rural areas (McDaniel & Zulu 1996; Isiugo-Abanihe 1985).

Unlike the child fosterage patterns identified in West Africa where children are highly mobile (Bledsoe & Isiugo-Abanihe 1989; Page 1989; Isiugo-Abanihe 1985), fostered children in the Kenyan context may not be experiencing significant mobility and migration away from their mother's home. Where parents - and perhaps especially mothers - are migrating to urban slum settlements, their children may remain in the households where they were born and brought up, in the care of grandparents or other relatives who share this family home. Lloyd and Desai (1992) note that children are much more likely to live apart from mothers when the mother is a recent out-migrant to an urban area, particularly immediately following migration or where mothers have no kin networks in their place of destination. Thus, child 'circulation' or 'relocation' may not, as suggested by Bledsoe and Brandon (1992), accurately describe the phenomenon that exists in some African contexts, where parents are more mobile.

For some families, however, children may be those moving, either from a mother's usual residence in the slums to relatives in other areas or returning to homesteads after co-migrating with mothers. Research in South Africa shows that children whose mothers are temporary migrants or living apart from the child have increased odds of mobility compared to children with co-resident mothers, indicating that migration of mothers may play a role in the movement of their children (Madhavan *et al* 2012). Migrant mothers giving birth in informal settlements in

urban South Africa may keep their young children with them for the first years, later sending them to rural homelands; this results in higher proportions of children under age 2 in townships and more older children living in rural areas (Hall & Posel 2012). Mothers' migration may influence the probability of child out-fostering, but little research has explicitly examined this relationship in sub-Saharan Africa. In her analysis of Demographic and Health Survey (DHS) data from 1992-1993, Vandermeersch (2002) found that migration episodes of Senegalese mothers influenced the likelihood of child out-fostering, but only in cases of recent migration (in the last five years) to small, rural villages. Mothers' migration to urban towns and cities were not found to affect the decision to foster children (Vandermeersch 2002).

Reasons for Child Fostering

Mothers may choose to send children to be fostered outside of Nairobi or have them remain in their place of origin for a variety of reasons. Earlier reviews of fostering in West Africa indicate a number of fosterage strategies including crisis fostering, kinship fostering, alliance fostering, apprentice or educational fostering, and domestic fostering (Page 1989; Isiugo-Abanihe 1985; Goody 1982). Familial disruptions such as death of a parent, divorce, and remarriage have been linked to increased likelihood of out-fostering (Grant & Yeatman 2013; Goody 1982). Changes in circumstances such as economic or illness shocks within the family may also lead to maternal-child separation. As noted in Goody's (1982) work on West African fosterage, these disruptive events may trigger 'crisis' fostering, while other families may foster voluntarily due to parental or extended family preferences for child residence, for companionship, or for education or training reasons. Much of this fostering takes place within kin networks, but non-relatives may serve as foster parents, especially in the case of domestic or educational fostering.

Parents may choose voluntary fostering, either specifically for educational purposes or to provide companionship or assistance to relatives, or simply to ensure children are adequately cared for when mothers may feel unable to. Research indicates that the circulation of young children from urban to rural areas is common throughout sub-Saharan Africa, especially when mothers live in informal settlements, when they are employed, or when there is little social support (Nelson 2002; Page 1989; Nelson 1987). Qualitative work in Nairobi's slums has indicated mothers are acutely aware of potential risks and complications of raising children in the informal settlements, and seek out kinship care outside Nairobi to ensure children are adequately cared for. Other mothers find themselves fostering children due to desires of extended family or of co-resident husbands, indicating kinship ties play an important role in determining where and with whom children reside (Cotton & Beguy 2013). Both qualitative and quantitative work in other African slums demonstrate that mothers are often uncomfortable with the poor conditions in informal settlements and with the dearth of quality services – particularly for health and education – available within slum settlements (Meth 2013; Archambault *et al.* 2012). The difficulty in accessing services within Nairobi's slum settlements has been found to influence parents' decisions about child in-migration (Archambault *et al.* 2012).

Consequences of Child Fostering

Children living apart from their mothers may experience negative consequences to their social, emotional, and physical well-being. Children living with non-biological caregivers have been

found to fare less well than those living with biological parents or close relatives, although this work primarily focuses on outcomes of orphaned children (Case *et al.* 2004). Nonetheless, fostered children with living parents may be treated differently than non-fostered children and suffer negative effects of fostering. Rolleston's (2011) work in one region of Ghana indicates that some foster children do not enroll in school at the same rate as non-fostered children in the same household, and are also more likely to leave school and less likely to perform as well as those who are not fostered. In Mali, Castle (1995) demonstrates that children who are crisis-fostered experience worse nutritional outcomes compared to fostered children who are fostered at the request of their foster mothers. In Cote D'Ivoire, Ainsworth (1996) finds that foster children (both male and female) are more likely to have performed farm or domestic work compared to biological children in the same household, and have significantly lower levels of school enrollment. Bledsoe and colleagues (1988) determine that young fostered children in rural Sierra Leone experience more malnutrition than children who live with their mothers, indicating food allocation in host families may result in inadequate care for foster children. Collectively, such findings suggest the so-called "Cinderella Effect" may be at play (Zimmerman 2003), where foster parents invest less in their foster children than in their more closely related relatives and their biological children.

Conversely, other evidence points to several positive results of fostering for children who live apart from their parents. Given the well-established trend of fosterage for educational reasons (Page 1989; Isiugo-Abanihe 1985), fostering may benefit certain children and improve their access to educational opportunities. Zimmerman (2003) finds that among Black South African children, fostered children are not less likely to attend school than non-fostered children. Similarly, the results of Akresh's (2007) research in Burkina Faso suggest that fostered children are more likely to be enrolled in school compared to their non-fostered biological siblings and the children residing in their host family, indicating such children may have been fostered with the express purpose of schooling.

In recent years, much of the literature on child fostering patterns and children's living arrangements has focused on the living arrangements of orphaned children, particularly those orphaned as a result of HIV/AIDS (Beegle *et al.* 2010; Hosegood *et al.* 2007; Madhavan 2004; Monasch & Boerma 2004; Urassa *et al.* 1997). However, child fostering is likely to be very different for non-orphaned children, given that their parents being alive indicates their separation may be temporary and may change over time (Bledsoe 1990). While some aspects of child fostering may be similar between orphans and non-orphans, it remains important to understand the motivations behind the voluntary use of kinship fostering for non-orphans, especially for mothers migrating to and living in slum settlements who may face difficult choices about where their children live. In our paper, we aim to answer two specific questions: first, what factors – specifically, characteristics of mothers and children – are generally associated with child out-fostering in Korogocho and Viwandani slums in Nairobi; and second, whether migrant women – based on their reported duration of stay in the slums – are more likely to foster children than non-migrant women, and what characteristics of migration are associated with child fostering. We aim to specifically highlight the role migration and its characteristics play in determining whether children reside with their mothers or whether they live elsewhere. Few studies have analyzed child fostering in informal urban settlements, and we hope to contribute to the literature on child fostering and children's living arrangements for sub-Saharan African slum dwellers.

Data & Methods

The data we use for this paper come from the Nairobi Urban Health and Demographic Surveillance System (NUHDSS), collected by the African Population and Health Research Center in Nairobi, Kenya's capital city. The NUHDSS has operated in Korogocho and Viwandani settlements since 2002 and collects data from all households in the demographic surveillance area (DSA) at regular intervals each year. The data collection includes data on household membership and characteristics (household characteristics, amenities, and livelihoods, collected once per year), key demographic events (pregnancies and births, deaths, union formations and dissolutions, in-and-out migrations collected quarterly), as well as health information. Data is collected from, on average, 28,500 households and residential structures within the DSA. The NUHDSS follows an average of approximately 71,000 individuals per year in both communities (Emina *et al* 2011). Data in this paper is drawn from full birth histories collected between 2005 and 2009, with information collected from 18,397 women who have a total of 26,555 children.

Study Context

Korogocho and Viwandani are located on the outskirts of Nairobi, approximately 12 km and 7 km outside the city center, respectively. More than 60% of Nairobi's residents are estimated to live in informal settlements like Korogocho and Viwandani or in slum-like conditions (UN-HABITAT 2006). Conditions in Korogocho and Viwandani, like in other slum settlements in sub-Saharan Africa, are often over-crowded, and residents face a number of problems and risks to their health and security. Both communities are in close proximity to environmental risks, including the Nairobi Refuse Dump Site, heavily polluted rivers, and a heavy industrial zone. Public services including water and sanitation provision, schools, and health clinics are few in both communities (Archambault *et al.* 2013). Research in Nairobi's slums has identified a number of disadvantages and risks faced by slum-dwellers, in particular high morbidity, increased rates of mortality, unstable and low-paying employment opportunities, and limited access to health services for both children and adults (Bocquier *et al.* 2011; Kyobutungi *et al.* 2008; Zulu *et al.* 2006; Taffa *et al.* 2005; APHRC 2002).

Kenya's population is diverse, with the Kikuyu (18.5%), Luhya (17%), Kalenjin (13.3%), Luo (13%), and Kamba (11.3%) ethnic groups making up the largest proportion of the population (Kenya National Bureau of Statistics & ICF-Macro 2010). Given Nairobi's location in Central province near traditional home areas of the Kikuyu and Kamba, greater concentrations of these ethnic groups are present in the city (36.8% of Nairobi citizens are Kikuyu; 19.1% are Kamba), but the population of Nairobi is ethnically heterogeneous. Compared to both Kenya as a whole and Nairobi, certain ethnic groups are over-represented in the slums while others are under-represented. Roughly one quarter of female residents of Nairobi's slums are Kikuyu and a further quarter are Luhya; 22% are Luo, 16% are Kamba, and various other ethnic groups each make up less than 3% of the slums' population (APHRC 2002). The two slums undergo significant shifts and changes in their population structure. Population turnover in both slums is significant, particularly due to high rates of circular and in-migration. Women make up a large proportion of

those migrating in and out of Korogocho and Viwandani, with higher in- and out-migration rates for adolescent and young women compared to men (Beguy *et al.* 2010).

While the two slums share a number of similarities, there are differences both in general conditions, population size and structure, and outcomes. A large proportion – over 30% – of the inhabitants of both Korogocho and Viwandani are under age 15; however, Viwandani has a larger proportion of working-age males (15-64 years) while Korogocho has more very young children under age 4 and a higher dependency ratio (Emina *et al.* 2011). Viwandani has a higher male-to-female ratio, likely related to the slum's proximity to an industrial area where men may be more likely than women to find employment. Both the household size and the total fertility rate are slightly higher in Korogocho compared to Viwandani (Emina *et al.* 2011). The majority of residents in both communities were born elsewhere, but a larger percentage of the population (95%) are in-migrants to Viwandani compared to 75% of the population of Korogocho. Viwandani also has both higher in- and out-migration rates compared to Korogocho, and higher migration for all age groups (Beguy *et al.* 2010). Overall, Korogocho is a more settled community compared to Viwandani. The median duration of stay in Korogocho and Viwandani is 16 years and 7 years, respectively (Muindi *et al.*, 2009). Most residents in the two slums rely on unstable and low-paying sources of income (Zulu *et al.*, 2006).

Variables of Interest

Our key dependent variable is child fostering, referring to children who do not reside with their biological mothers at the time birth histories were collected (between 2005 and 2009). We rely on mothers' reports of having children who do not live in their current household in the slum settlements. With our data, we are not able to ascertain where non-resident children live, the distance between the residence of the mother and the residence of the child or children, or what level of contact and support is maintained for non-resident children. Our data includes two main indicators of child fostering, with mothers asked generally if they have living children under the age of 15 who live away from them at the time of survey, and a further question asking whether each child mothers have reported to be alive are currently living with the mother. The child-specific variable includes a follow-up question concerning who the child lives with if not living with the mother, with mothers indicating that non-resident children live with fathers, grandparents, other relatives, in boarding school, or with others. We use the child-specific variable, coded as 0 for "lives with mother" and 1 for "does not live with mother," as our dependent variable.

Our independent variables are drawn from mother-level, household-level and child-level data collected between 2005 and 2009 and mothers' in-migration data collected between 2007 and 2011. We include mothers' characteristics (age, marital status, parity, education level, religion, and ethnicity), child-level variables (gender, birth order, age at last birthday), household characteristics (home ownership, relation to the household head, and slum location), and migration-related factors (duration of stay in the community). We construct two measures of mothers' migrant status from both the birth history data and the in-migration data. First, a simple dichotomous variable indicates whether mothers have been processed as in-migrants to the DSA

(whether they have entered the DSA as an in-migrant by residing in the settlements for at least 120 days). We code this variable as 0 for “not in-migrant” and 1 for “in-migrant.” Women identified as in-migrants are those who make up our in-migrant sub-population. A second categorical variable is constructed based on mothers’ reported duration of residence in the DSA. Respondents were asked how long they had lived continuously in the community and gave a response of the appropriate number of months or years, or indicated they had resided continuously in the DSA since birth. We collapsed the numerical responses into six categories: 1) respondent in DSA since birth or more than 10 years; 2) respondent in DSA for 5 up to 10 years; 3) respondent in DSA for 3 up to 5 years; 4) respondent in DSA for one up to two years; 5) respondent in DSA for 7 months up to one year; and 6) respondent in DSA for 0 to 6 months.

Previous research analyzing child fosterage in other contexts have noted that mothers’ age influences likelihood of sending children out to be fostered, with women older than 35 years of age being less likely to out-foster their children (McDaniel & Zulu 1996). We use a categorical variable for mother’s age, with women grouped into seven categories: 12 to 19 year olds, 20 to 24 year olds (our reference group), 25 to 29 year olds, 30 to 34 year olds, 35 to 39 year olds, 40 to 44 year olds, and 45 to 49 year olds. Married mothers are typically less likely to foster out their children compared to divorced, widowed, or never-married mothers, who may send their children to other relatives after the end of their union or due to greater instability or financial difficulties (Vandermeersch 2002; Blanc & Lloyd 1994; Isiugo-Abanihe 1985). Our variable for mother’s marital status divides women into four groups. Our reference group is mothers in a “formal union,” which may constitute a civil, religious, or traditional marriage. The remaining women are categorized as “not in a formal union,” meaning they are not currently married, “in an informal union,” what is commonly known in Kenya as a ‘come-we-stay’ relationship (Bocquier & Khasakhala 2009), and “divorced, separated, or widowed.”²

We include mothers’ ethnicity as a control variable, which may influence cultural and traditional choices about child non-residence. In addition, ethnicity may serve as a proxy for measuring the geographical distance of one’s place of origin to Nairobi for those who have migrated, as certain ethnic groups’ traditional home areas (Kikuyu and Kamba) are close in proximity to Nairobi while others (namely the Luo and Luhya peoples) are significantly further away. Our ethnicity variable includes Kikuyu (reference group), Luhya, Luo, Kamba, and a group encompassing all remaining ethnic groups, which we have collapsed into one category due to low numbers for each individual ethnicity.³

Mother’s level of education may affect likelihood of fostering, with lesser-educated mothers being less likely to send their children elsewhere compared to mothers with more education in some settings (McDaniel & Zulu 1996; Blanc & Lloyd 1994), and the opposite in other contexts (Ainsworth 1996; McDaniel & Zulu 1996; Isiugo-Abanihe 1985). Our education variable compares women who have never attended school (our reference group) to women who attended

² A percentage of those who report they are in a formal union are likely in a ‘come-we-stay’ arrangement without formalization, thus we may have an over-estimation of those in formal unions and an under-estimate of those in informal unions. While it would be ideal for us to be able to separate out those women who are divorced/separated from those who are widowed, the data does not allow us to do so.

³ The ‘other’ ethnic group in our analyses includes Meru, Emba, Kisii, Mijikenda, Swahili, Somali, Taita, Masai, Kalenjin, Garre, Borana, Ajuran, Gabra, Giriama, Kuria, Mbeere, Pokoma, and Sukuma. Each group made up, in the majority of cases, less than one percent of our final sample; thus we have grouped them together for analysis.

primary school, and those who attended secondary school or further education. We include three household-level independent variables to determine women's location and the status of their household in the communities. We use a dichotomous variable to indicate which slum women are residents of, with Korogocho as our reference group. Women are asked how they are related to the head of the household in which they reside. We collapse this variable into a categorical variable with "self/respondent is head" as our reference, and comparison categories including "wife of household head," "child/grandchild of household head," and "other relative or non-relative of household head." Our final household variable indicates whether women own their home (our reference) or are renting their housing from someone else.

Child's age is an important factor to consider, as very young children – under the age of five – are likely to be fostered for very different reasons than older, school-aged children, and indeed very young infants are generally unlikely to live separately from their mothers (Akresh 2007; Vandermeersch 2002; Ainsworth 1996; Lloyd & Desai 1992; Nelson 1987) With this in mind, we use a categorical variable for child's age with children aged 11 to 15 years on their last birthday as our reference group. The remaining children are grouped into those aged 0 to 1, those 2 to 3 years, those 4 to 5 year, and those 6 to 10 years. Child's gender may influence the likelihood of fostering, with young girls fostered out for domestic work or as companions to foster mothers, and young boys fostered for employment or educational opportunities (Lloyd & Blanc 1996; Page 1989). We use a dichotomous variable for child's gender, with males as our reference group. Child's birth order may be important for fostering, with older children more likely to live separately especially if there are many younger children in their mother's home. We collapse birth order into six categories: firstborn, second-born, third-born, fourth-born, and fifth-born and higher.

We include a number of migration-related controls for our second model for our in-migrant subsample. We use a measure of whether a move is reported to be permanent or temporary, coded as 1 for "here to stay", 2 for "here for a while" and 3 for "unsure." We take a variable indicating where a respondent moved from prior to entering the DSA and collapse it into four categories: 1 for "any Nairobi slum," 2 for "Nairobi non-slum," 3 for "other urban Kenya," and 4 for "Rural Kenya and Outside Kenya." Finally, we have a variable that indicates the respondent's reported reason for moving into the DSA collapsed from a larger list of reasons. Respondents' reasons for moving into the DSA are coded as 1 "to be with family," 2 "better conditions," 3 "better job and education prospects," 4 "low cost of living," 5 "rent is cheap," and 6 "for a change or other reasons."

Our initial sample consists of 18,397 women with a total of 26,555 children. A total of 101 women were dropped due to duplicate individual identification numbers. All women reporting zero live births were removed from the sample, resulting in 6,994 dropped observations. We removed observations for children who are no longer living (948 observations removed), as well as 16 observations where women lacked information for all child-specific variables. After merging and reshaping our data, we have a total of 23,010 living children and 10,338 women. We remove children with fully missing age and birth year information (9 child observations dropped). Finally, we remove observations for all children reported to be ages 16 or higher (3,210 child observations dropped), as questions concerning the residence of children were only

asked for children under age 15.⁴ After cleaning the data, the full analytic sample includes 10,248 women aged 12 to 49 with 19,791 living children age 15 and under at the time of interview. Our sub-population of in-migrant women, with data collected between 2007 and 2011,⁵ was merged into birth history data, resulting in a sub-sample of 3,909 women and 6,801 children.

In order to determine the factors that influence child non-residence/fostering for mothers living in the DSA, we employ logistic regression. The log odds of mothers reporting having a child living away ($\log[p_i/1-p_i]$) is a function of mother's characteristics (age, ethnicity, education, marital status, and duration of residence in the DSA), children's characteristics (age, birth order, and gender), and household characteristics (slum area, household ownership, and relation to the head of household).

$$\log\left(\frac{p_i}{1-p_i}\right) = \mathbf{MOTHER}_i\beta_1 + \mathbf{CHILD}_i\beta_2 + \mathbf{HOUSEHOLD}_i\beta_3 + \varepsilon_i$$

Independent variables for the in-migrant sample include those for the general sample, as well as migration-related characteristics (aim of moving, where the respondent moved from, reason for moving to the DSA, and previous residence in the DSA).

$$\log\left(\frac{p_i}{1-p_i}\right) = \mathbf{MOTHER}_i\beta_1 + \mathbf{CHILD}_i\beta_2 + \mathbf{HOUSEHOLD}_i\beta_3 + \mathbf{MIGRATION}_i\beta_3 + \varepsilon_i$$

To facilitate interpretation, we report results as odds ratios ($e^{\log(p/1-p)}$). We examine our sample of all mothers and our sub-sample of in-migrant mothers separately. We use clustered standard errors in all models to account for children who share the same mother.

Results

Descriptive Analysis

Table 1 displays the descriptive results of mothers' characteristics by child's residence. Overall, 24.1% of the 10,248 mothers report that they have at least one living child who does not reside in their household. When asked about specific children age 15 and under, 18.5% of mothers (1,815) indicate their child lives with someone else. The percentages of mothers with children reported as non-resident vary by mother's characteristics. Very few young mothers (age 12 to 19) report they have an out-fostered child (less than 3%), while the percentage of fostered children increases across age groupings to a high of 28.2% for mothers aged 30 to 34 years (See Table 1).

⁴ While the question posed to mothers asked only about child non-residence for children under 15 years of age at the time of interview, we were provided a response for 128 children aged 15; thus, we include children aged up to and including 15 years in the sample.

⁵ The NUHDSS defines an in-migrant as someone who has migrated into the Demographic Surveillance Area (DSA) and resided for a minimum of four consecutive months. We include migration episodes only if they occurred prior to the collection of birth history data for the respondent.

Fostering rates vary by ethnicity, with 30.1% of Kambas, 18.5% of Luhyas, 16% of other ethnic groups, 14.3% of Kikuyus, and just 10.9% of Luos reporting an out-fostered child.

(Insert Table 1 about here)

The descriptive results show that fewer women who have never attended school report a non-resident child (10.5%) compared to women with primary education (17.8%) and women who attended secondary school or further education (21.2%). We find that more women in formal unions report a fostered child (19.1%) while fewer women in informal unions report the same (15.8%). Women who are not in a formal union and women who are divorced, separated, or widowed report similar percentages of out-fostered children (17.1% and 17.6%, respectively).

Our findings show that approximately 15% of respondents indicate they have resided in the informal settlements since birth or for more than 10 years continuously. Slightly more than 27% arrived in Korogocho or Viwandani within the previous six months, while another 22.2% have lived in the settlements for 7 to 12 months. About 6.7% of women reported a duration of residence of one to two years, while between 14% and 15% of women indicated they had lived in slums for two to five years or for five to ten years, respectively. The percentages of women reporting at least one fostered child vary over duration of stay. Relatively few of those mothers born in the DSA or living there for 10 years or more reported children who do not live with them (roughly 11%), while about 13.6% of women residing in the DSA for 5 to 10 years indicate the same. The percentage of women reporting a fostered child rises for those with a lesser duration of stay, with 15.8% of women residing for 2 to 5 years, 19.1% of those residing for 1 to 2 years, and 22.2% for those residing for between 7 and 12 months. More of the newest residents, those residing in the communities for less than 6 months, report a non-resident child (23.8%).

(Insert Table 2 about here)

Table 2 shows descriptive results for children's characteristics by according to their living arrangements. Approximately 15% of all children age 15 and under are recorded as living with someone other than their mother. Of the children reported as residing elsewhere, the majority live with grandparents (83.6%), while 8.2% live with another relative, 4.4% live with their fathers, and roughly 2% live at a boarding school or with someone else, respectively. Our sample of children is roughly equally split between boys and girls; 51% are male while 49% are female. A slightly higher percentage of boys is reported to be fostered (15.2%) compared to girls (14.4%). Nearly half of the children are their mother's first-born child, while more than a quarter are the second-born child. A higher percentage of first-born children are reported to be fostered (17.7%) compared to 14.2% of second-borns, 11.5% of third-borns, 10.9% of fourth-borns, and 9.1% of children who are fifth-born or a higher birth order.

Finally, we note a significant difference between children reported as non-residence by child's age. Only 1.3% of children age 0 months to 1 year are not residing with their mothers. This percentage increases sharply across age groupings, with 7.8% of those age 2 to 3 years, 16.4% of

those age 4 to 5 years, and 22.4% of those age 6 to 10 years old. Just over 29% of all children age 11 to 15 years are reported to live with someone other than their mothers.

Factors Associated with Child Fostering

In Table 3, we present our regressions which look at the factors related to children's non-residence, including characteristics of mothers, children, the household, and the mother's duration of stay in the DSA. We find that mother's age does not matter for whether mothers report a child residing elsewhere. Mothers belonging to certain ethnic groups are significantly more likely to report a non-resident child. Compared to Kikuyu mothers, Luhya mothers and Kamba mothers have significantly higher odds of reporting an out-fostered child. Luo mothers have lower odds, and mothers of various other ethnic groups have slightly higher odds, but these results are not significant. When we compare mothers who have never attended school, we find that mothers who have attended primary school or secondary school are more likely to have children living separately, although the results are only significant for mothers with secondary education or further education. Mothers' marital status appears to have little influence whether or not children reside with mothers, with mothers who are divorced, separated, or widowed being less likely than mothers in formal unions to have non-resident children (marginally significant at the 10% level).

(Insert Table 3 about here)

We do not find any significant differences in the likelihood of fostering for child's gender. Compared to first-born children, second-born children are somewhat less likely (significant only at 0.10) and third-born children are significantly less likely to be out-fostered. We note significantly lower odds of living apart for younger children compared to children aged 11 to 15 years, with a particularly large difference for the youngest children in our sample. Children aged 6 to 10 years are 47% less likely to be fostered, while children aged 4 to 5 are 72% less likely compared to those aged 11 to 15 years. Very young children aged 2 to 3 years are 88% less likely to live apart, and infants aged 0 to 1 years are 98% less likely to be non-resident compared to our adolescent reference group.

Compared to those living in Korogocho, women who reside in Viwandani are 79% more likely to report a child who does not live with them. Women who rent their homes have higher odds of having an out-fostered children compared to those who have purchased or inherited their home. Compared to those who are the household head in their homes, all other women have increased odds of reporting an out-fostered child, but these findings are not significant.

We find significant effects for mother's duration of stay in the DSA. Compared to mothers who have resided in the DSA since birth or for more than 10 years, very new migrants (less than 6 months) are more than 4 times more likely to have a non-resident child (p-value 0.001). We also find that those living in the DSA for 7 to 12 months and those living there for 1 to 2 years, odds are increased between 2.8 and 3.7 times (significant at the 0.1% level). Women residing in the DSA for 2 to 5 years are also about 1.7 times more likely to have an out-fostered child. Long-

term residents residing in the DSA for 5 to 10 years do not have significantly increased odds of an out-fostered child compared to those in the DSA since birth or for more than 10 years.

Factors Associated with Child Fostering for Migrant Mothers

In Table 4, we present the results of regression analysis solely for our sample of women who have in-migrated to the DSA. We include in this model all those independent variables used for our larger sample, as well as a number of migration-related variables. We see no significant differences across mother's age groupings.

With regard to differences among ethnic groups, only Kamba mothers are more likely to have a child who does not live with them compared to Kikuyu mothers (OR 2.80), although Luhya mothers are somewhat (OR 1.31, but only marginally significant at the 10% level) more likely as well. Compared to women in formal unions, mothers who are divorced, separated, or widowed have greater odds of reporting a fostered child. We see a significant effect of education for both those with primary education and secondary education or more. Compared to those who have never attended school, those with primary schooling are 96% less likely and those with secondary or high education are 95% less likely to report a non-resident child (p-value 0.001).

(Insert Table 4 about here)

There is no significant difference between female and male children, nor do we find any highly significant differences between first-born children and higher birth order children. Compared to children ages 11 to 15 years old, the odds of being out-fostered for children aged 6 to 10 years are decreased by approximately 50%, while all younger children are significantly much less likely to live elsewhere (between 73% and 99% less likely, all highly significant).

Migrant women who live in Viwandani are over two times more likely to report a fostered children compared to migrant women living in Korogocho. Migrant women who rent their housing have higher odds of having a non-resident child compared to women who own their homes in the slum. Compared to mothers who moved to the DSA with the aim of staying there, mothers who reported they were only staying "for a while" are 60% more likely to have a child living elsewhere. When comparing those who moved from outside Nairobi's slums to those who moved from a slum to the DSA slum, we find that mothers who have moved from a non-slum area of Nairobi have increased odds of having an out-fostered child (OR 1.81) and those from rural Kenya or outside of Kenya are 55% more likely to have a non-resident child. We find no difference for those moving from other urban areas of Kenya. We compare mothers' identified reasons for moving to the DSA, using 'to be with family' as our reference group. We find a significant difference for all those who identified various reasons for in-migrating. Those who in-migrated due to better conditions or better job or education prospects are over 2.5 times more likely to have a non-resident child, while those who migrated to the DSA due to the lower cost of living or because rent is cheap are over 1.5 times as likely to have an out-fostered child. Those women who report migrating to Korogocho or Viwandani for a change or for other reasons are nearly 3.5 times as likely to report a fostered child living elsewhere compared to those who

moved to be with family. Having previously resided in the DSA in the past does not significantly affect the likelihood of reporting a child who does not live with their mother.

Discussion

This study offers new understanding of the factors related to child out-fostering for women living in Nairobi's slum settlements. In particular, we provide unique insight about the relationship between migration and child residence for mothers who have migrated into Nairobi's slums. For a significant number of mothers and children, child fostering is regularly used as a means of balancing the needs of the family.

Nearly 15% of all reported children aged 15 or younger are reported as living apart from their biological mothers, with more than 18% of mothers aged 12 to 49 indicating one or more of their young children are out-fostered. Previous work that found child fostering rates for Kenya as a whole indicated lower percentages of children living apart from their mothers – 6.8% of children age 0 to 14 years (Lloyd & Desai 1992, 6.9% of children according to DHS data (McDaniel & Zulu 1996), 7% of children 0 to 14 based on Multiple Indicator Cluster Survey (MICS) data (Monasch & Boerma 2004), 8.3% of non-orphans (Beegle *et al.* 2010), and ranges from 9.8% in Kenya's Eastern province to 16.1% in Western province (Page 1989). Our results suggest that fostering in the slum settlements may operate differently than fostering in other, non-slum areas of Kenya, but further research allowing comparison between all regions of the country – Nairobi slums, non-slum areas of Nairobi, other urban areas, and rural areas – is needed in order to understand what differences truly exist between the slums and other parts of Kenya.

Our descriptive results indicate that a number of characteristics of mothers, children, and their household are significantly associated with the likelihood of a child living apart. Less than 3% of young mothers have out-fostered their children, while between 22% and 28% of mothers between 25 and 49 years have at least one non-resident child. The very low percentage of young mothers with out-fostered children is likely a result of their children being very young themselves; approximately 95% of child of adolescent mothers are under age 3. In addition, these very young mothers have given birth to few children, with less than 2% of these young women reporting more than two total live births. Certain ethnic groups have much higher rates of fostering compared to others, with close to one third of Kamba mothers reporting a fostered child while just 11% of Luo mothers report the same. Other ethnic groups, including Kikuyus, Luhyas, and various other ethnic groups have rates of fostering between 14% and 19%. Nearly twice as many mothers with secondary education compared to mothers with no schooling have a fostered child, while fostering rates do not differ significantly by mother's marital status.

We find an association between mother's duration of stay in the DSA and the percentage of mothers with fostered children, with a low of about 11% of mothers residing in the DSA since birth or for more than 10 years to a high of 23% of mothers living in the DSA for six months or less. Almost twice as many mothers in Viwandani as in Korogocho have a fostered child. This is line with the nature of the two slums, with Viwandani being a more transient community and Korogocho being home to a more settled population. Just over 10% of mothers who own their

homes in the slums have a fostered child, while nearly 20% of mothers who rent their housing have a non-resident child.

The results of our regression for all mothers living in the slum settlements indicate that several of the associations found in our descriptive results do not hold when we control for other factors. We find no significant effect of mother's age on the odds of a having a fostered child. Certain ethnic groups are more likely to report an out-fostered child; in particular, Luhya mothers are approximately 34% more likely to have a non-resident child while Kamba mothers are nearly three times as likely compared to Kikuyu mothers. This may be linked either to cultural traditions within ethnic groups – for example, Luhyas and Kambas are patrilineal, and children of divorced women traditionally reside with their father's family after a union dissolves – or to geographical distance between traditional home areas and Nairobi City. Geographic distance may either promote or inhibit child fostering for mothers. Mothers whose home and family are located in close proximity to Nairobi, such as many Kamba women whose traditional home areas are in nearby provinces, may be able to foster children while still maintaining frequent contact and visitation due to short distances and lower costs of travel. For mothers whose place of origin is far from Nairobi, as is the case for Luhyas whose home area is in Western Kenya, significant distance may prevent women from bringing young children to Nairobi due to uncertainty about conditions and employment in the capital.

We find significant effects of mother's level of education, with all those with any level of education more likely to report out-fostered children; the effect is larger and stronger for those who have attended secondary school or further education. This echoes the finding in some other settings that mothers with higher levels of education are more likely to out-foster their children. Higher levels of women's education may influence the likelihood of out-fostering by increasing women's participation in the labor force. We find, somewhat surprisingly, that marital status does not significantly affect the likelihood of having a fostered child, although divorced, separated and widowed women are somewhat less likely than women in formal unions to have a non-resident child. Given previous research that highlighted the role of union dissolution as a catalyst for changes in children's living arrangements, the lack of significant differences based on mother's marital status is not what we would have expected. Additionally, we are not able to determine which proportion of mothers in any form of union are in union with the father of their child and which may be remarried to another man; other research has indicated that maternal remarriage often increases the risk of out-fostering for children (Grant & Yeatman 2013), which we are not able to capture.

We find that some characteristics of children affect the likelihood of being reported as a non-resident child. Child's gender is never significant in our study, whereas studies in other contexts have noted that girls are often more likely to be out-fostered compared to boys (McDaniel & Zulu 1996; Lloyd & Desai 1992; Page 1989; Isiugo-Abanihe 1985). Child's birth order is largely not significant, with only children who are the third-born being less likely to be out-fostered. While this finding is in line with what might be expected – that firstborn children would be most likely to be those reported to be absent from the mother's household – it is somewhat surprising that only third-born children are significantly less likely while other, higher birth order children are not more or less likely to be fostered than first-borns. We find that child's age is very significant in the expected way, with all children aged 10 and under significantly less likely

than our oldest group – 11 to 15 year olds – to be out-fostered. The youngest children (aged 0 to 1 year) are 98% less likely to be non-resident compared to our reference group of young adolescents, with odds increasing very slightly for each older age category we examined. Thus, our results are similar to those in other studies, which determine that very young children, particularly those still likely to be breastfeeding, are very unlikely to be living separately from their mothers (Vandermeersch 2002; Ainsworth 1996; Lloyd & Desai 1992). Qualitative work aimed at understanding why children are out-fostered from the slums indicated that some mothers are using fostering as a means of getting their adolescent children into secondary school, and out of reach of the potential dangers of the slums (Cotton & Beguy 2013). Our findings echo those of other studies that find children born or raised in the slums are sent elsewhere for education purposes (Beguy *et al.* 2010), indicating that the out-fostering strategies mothers report in qualitative work are often put into practice.

Mothers who live in Viwandani are more likely to have a fostered child than women living in Korogocho. Given that Korogocho is a more settled community and Viwandani has a greater percentage of temporary residents, often drawn by work opportunities in the nearby industrial area, this finding is consistent with our expectations, as we would expect that residents in Viwandani are less likely to be long-term residents or to intend to stay for the long-term. We also find that women who rent rather than own their housing have higher odds of having a fostered child. This finding is expected, as women who own a home within the slums may intend to remain there permanently, whereas some renters may be renting due to intentions of migrating elsewhere in the short or long-term. Our analysis shows that there is no significant effect of how the mother is related to the head of household on the likelihood of having a fostered child. Due to a low number of women reporting themselves as non-relatives, we were not able to separate out those women living with non-relatives from those living with a member of their extended family. Women living with non-relatives may be working as domestic help or living with others due to an inability to support themselves; it might be expected that such women may be more likely to practice fostering if they are not able to bring their children into a non-relative's home.

Mothers' duration of stay in the slum settlements is also important for child fostering. We used long-term migrants and those born in the slums as our reference group, given that they have the lowest percentage of children reported as non-resident in our descriptive results. When we compare migrants who have lived in the surveillance area for less than 10 years, we find that all those who have lived in the slum for less than five years are much more likely to have non-resident children. The odds are highest for very recent migrants living in the slum for 6 months or less, with odds decreasing for those who lived there for longer time periods up to five years. This finding is consistent with what we would expect, as we would anticipate that those who have lived in the slum for an extended period of time may be more likely to be settled in the community and to have built a support network for themselves and their children. Long-term residents with strong support systems and ties may be more satisfied with their place of residence, and may be more likely to plan to stay (Mudege & Zulu 2011). Very recent arrivals may choose to migrate alone without their children due to uncertainty about the permanence of their move or the conditions that await them in the slum settlements. As time of residence increases, we would expect that migrants may make arrangements for children to join them if they intended to remain in the slums.

When we look only at our in-migrant sub-sample, we find that effects of several of mother's characteristics are significant. For migrant women, we see no effect at all for women's age. Migrants belonging to certain ethnic groups – namely the Kamba – have increased odds of reporting non-resident children. As we postulate for all women, these findings for ethnicity may be linked to the distance such migrants may be from their rural homes, with Kamba women choosing fosterage strategies due to a very short distance and ease of contact with their children while women from elsewhere in Kenya may make such decisions due to the difficulty of bringing children a long distance to Nairobi. For migrant women with primary education or secondary education or more, we find significantly decreased odds of having out-fostered children, suggesting that educated migrants may come to Nairobi and have better access to opportunities that assist them in caring for their children compared to migrants with no schooling. Work in other regions suggests that such findings may indicate the desire of educated women to ensure their children are well-cared for, and the knowledge that fostered children may be more vulnerable to poor outcomes (McDaniel & Zulu 1996). We find that women's marital status affects child fostering for migrant women, with divorced, separated, or widowed women 40% more likely to have a non-resident child. This fits with the findings of research elsewhere that finds women whose unions have ended are more likely to have out-fostered children than married women; based on qualitative work, we would also expect that such women may choose to migrate following the end of their union due to losing their home or needing to find new employment (Cotton & Beguy 2013).

The gender of migrant women's children does not affect the likelihood of them being fostered out, nor do we find effects for child's birth order. The age of migrant women's children is significantly associated with the odds of being a non-resident child. When we compare younger children to our adolescent reference group, the infants of migrant women are 99% less likely to be out-fostered, with odds for all younger children significantly less than our older reference group. This fits with work on child fostering in other populations, where even migrant women choose to keep their very young children in their household while older children, particularly adolescents, are considered more independent and able to live separately from their mothers.

Migrant women living in Viwandani are twice as likely as migrant women living in Korogocho to have a fostered child. As with the larger sample, this finding is to be expected given the significant rate of circulation and movement into and out of Viwandani compared to Korogocho. Migrant women moving into Viwandani are more likely to be temporary migrants who may be more likely to practice fostering given their intent to return to their place of origin after a shorter time period compared to those who migrate more permanently. We find that the migrant's reported aim of moving – whether they are in the slum to stay, just for a while, or are undecided – affects child non-residence, with those who indicate they are in the slum for a while about 60% more likely to have out-fostered children as those who plan to remain in the slum indefinitely. This is not surprising, given we might expect these temporary migrants intend to return to their place of origin and would be less likely to bring their children to the slum only for a short period of time. We see that compared to women who moved from any Nairobi slum, women who migrated from a non-slum area of Nairobi and those from rural Kenya or outside Kenya are more likely to have an out-fostered child. With this data, we are looking at the respondent's immediate residence before moving into one of the DSA slums, so when we are looking at those moving from within Nairobi, we are likely including a number of those who had previously moved from

the rural areas of Kenya. Qualitative work and migration histories collected within the slums has emphasized that migrations are rarely linear from one point directly to the slums, and a number of moves may have occurred between a respondent's place of origin and their current location in the DSA (Cotton & Beguy 2013). Women who originally moved from rural areas to other parts of Nairobi or elsewhere in Kenya prior to moving into the DSA slums may have left their children at the time they moved from their rural places, meaning that they may not have been living with their children in Nairobi before moving to Korogocho or Viwandani. More specific data on place of previous residence may help to illuminate these findings.

We look at migrant's reported reasons for moving into the surveillance area. We find highly significant effects of all reasons for moving into the DSA compared to women who moved to be with family. We would anticipate that those who choose to move to the slum settlements for economic or financial reasons may struggle to move with their children and may choose to foster them until they are able to care for their children in their new environment. In particular, mothers moving due to high cost of living in their place of origin may be moving to the slums specifically to find employment and to alleviate their financial burdens. In such cases, mothers may be more likely to practice fostering in order to ensure their children are cared for when they move to Nairobi's slums, where they may face uncertain opportunities and different struggles. Those mothers moving to have access to better employment or to education opportunities may choose to foster their children in order to more easily pursue these prospects. Mothers who move for a change may be moving for a variety of reasons – a change in environment, seeking new opportunities, or for other reasons – and the uncertainty of what awaits them in the slums may prompt them to have their children remain in their previous residence temporarily or more permanently.

While our research puts forward a number of findings on child fostering among slum-dwellers in Nairobi, we must note a number of limitations we face in our analyses. Although we are able to determine the percentages of children who are reported to live away from their mothers, and the numbers of sons and daughters mothers report as living separately, we lack data on other aspects of child out-fostering from the DSA slum settlements. Notably, we are not able to determine where non-resident children live, nor do we have information on the geographical distance between mothers and children, which may affect the decision to foster children outside the DSA. We are only able to ascertain a child's non-residence at the time of their mother's birth history interview; the data do not provide any information on how long the child has been fostered or any indication of the planned period of time the child may be fostered. We do not have perfect measures for mothers' migration status and unfortunately, we lack migration data for the children in our sample. Given that this data is based on mother's reports of their children, we cannot be certain that mothers have reported all of their living children, nor can we be sure that they have correctly identified the children who do not live with them, as qualitative work indicates mothers may report children are in their household when they are temporarily in the household of someone, and they may not record all of their non-resident children in their birth histories. In addition, the cross-sectional nature of the data precludes us from capturing causal relationships.

With these data, we do not possess a significant amount of information about each fostered child, which would be ideal to understand why these children in particular are fostered and whether their mothers intend for the fostering to be temporary or to serve as a more permanent form of

care for their child. Qualitative data collected within the two slum settlements has elucidated a number of factors around the decision to foster in the community (Cotton & Beguy 2013); ideally, a large-scale study focusing specifically on fostering practices used by families within the slums would allow us to analyze these patterns for the larger community. In particular, data that would allow for the precise ordering of key events and transitions linked to fostering – particularly the order of out- and in-migration episodes, parental union dissolution and remarriage, and changes in both mother’s and child’s residence over time – would be ideal in order to better understand how fostering is used by mothers in sub-Saharan African slums.

Despite these limitations, this work extends our knowledge and understanding of the frequency of fostering as practiced by mothers living in Nairobi’s informal settlements. In particular, our research highlights the role of in-migration and duration of residence in determining the non-residence of young children. Our research suggests a sizeable proportion of mothers residing in Nairobi’s slums foster their children, at least for some time, and that more recent residents are particularly likely to practice child fostering. Given the paucity of research aimed at analyzing fostering practices among slum-dwellers and migrant women, this work emphasizes the significance of understanding where the children of slum dwellers reside, especially as slum populations are rapidly increasing across the sub-continent. With growing slum populations throughout sub-Saharan Africa, it becomes of greater importance to have an accurate sense of whether slum dwellers prefer – or are forced – to out-foster their children, and whether they would make the same choices about fostering practices if conditions in slum settlements were more conducive to raising healthy children. There may be advantages and disadvantages to child non-residence for both mothers and children, and this paper does not seek to address them directly, but further research is necessary in order to have a better idea about why mothers choose fostering for their children, and whether changes in urban policy and improvements in slum environments would influence mothers’ decision-making on child residence.

Bibliography

- African Population and Health Research Center. 2002. *Population and health dynamics in Nairobi's informal settlements: Report of the Nairobi Cross-Sectional Slums Survey (NCSS) 2000*. Nairobi: African Population and Health Research Center.
- Akresh, R. 2007. "School enrollment impacts of non-traditional household structure." Unpublished paper. Available online (www.emlab.berkeley.edu/users/webfac/emiguel/e271_s07/akresh.pdf).
- Archambault, C., J. de Laat & E.M. Zulu. 2012. "Urban services and child migration to the slums of Nairobi." *World Development* 40(9): 1854-1869.
- Beegle, K., D. Filmer, A. Stokes, and I. Tiererova. 2010. "Orphanhood and the living arrangements of children in sub-Saharan Africa." *World Development* 38:1727-1746.
- Blanc, A. & C.B. Lloyd. 1994. "Women's work, child-bearing & child-rearing over the life cycle in Ghana." In *Gender, Work, and Population in sub-Saharan Africa* (eds. A. Adepoju & C. Oppong). London: James Currey, pp. 112-131.
- Bledsoe, C., D. Ewbank & U.C. Isiugo-Abanihe. 1988. "The effect of child fostering on feeding practices and access to health services in rural Sierra Leone." *Social Science & Medicine* 27(6): 627-636.
- Bledsoe, C. 1990. "The politics of children: Fosterage and the social management of fertility among the Mende of Sierra Leone." Pp. 81-100 in *Births and Power: Social Change and the Politics of Reproduction*, edited by W.P. Handwerker. Boulder, CO: Westview Press.
- Bledsoe, C. and A. Brandon. 1992. "Child fosterage and child mortality in sub-Saharan Africa: Some preliminary questions and answers." Pp. 279-302 in *Mortality and Society in sub-Saharan Africa*, edited by E.V.d. Walle, G. Pison, and M. Sala-Diakanda. Oxford: Clarendon Press.
- Bledsoe, C. and U.C. Isiugo-Abanihe. 1989. "Strategies of Child-Fosterage among Mende Grannies in Sierra Leone." Pp. 442-474 in *Reproduction and Social Organization in Sub-Saharan Africa*, edited by R. Lesthaeghe. Berkeley: University of California Press.
- Bocquier, P., D. Beguy, E.M. Zulu, K. Muindi, A. Konseiga & Y.Ye. 2011. "Do migrant children face greater health hazards in slum settlements? Evidence from Nairobi, Kenya." *Journal of Urban Health* 88(Supplement 2): S266-S281.
- Bocquier, P. & A. Khasakhala. 2009. "Factors influencing union formation in Nairobi, Kenya." *Journal of Biosocial Science* 41: 1-23.
- Castle, S. 1995. "Child fostering and children's nutritional outcomes in rural Mali: The role of female status in directing child transfers." *Social Science & Medicine* 40(5): 679-693.

Cotton, C. and D. Beguy. 2013. "Mothering as migrants: Experiences from the informal settlements of Nairobi, Kenya." Presented at the *IUSSP International Population Conference*, August 26-September 1, 2013, Busan, South Korea.

Emina, J., D. Beguy, E. Zulu, A. Ezeh, K. Muindi, P. Elung'ata, J.K. Otsola, and Y. Ye. 2011. "Monitoring of health and demographic outcomes in poor urban settlements: Evidence from the Nairobi Urban Health and Demographic Surveillance System." *Journal of Urban Health* 88(Supplement 2: Urbanization, poverty and health dynamics in sub-Saharan Africa: Insights from Nairobi slum settlements):200-218.

Goody, E. 1982. *Parenthood and social reproduction: Fostering and occupational roles in west Africa*. Cambridge: Cambridge University Press.

Grant, M. and S. Yeatman. 2013. "The impact of family transitions on child fostering in rural Malawi." *Demography*.

- 2012. "The relationship between orphanhood and child fostering in sub-Saharan Africa, 1990s-2000s." *Population Studies* 66(3): 279-295.

Hosegood, V., S. Floyd, M. Marston, C. Hill, N. McGrath, R. Isingo, and B. Zaba. 2007. "The effects of high HIV prevalence on orphanhood and living arrangements in Malawi, Tanzania and South Africa." *Population* 61:327-336.

Isiugo-Abanihe, U.C. 1985. "Child fosterage in West Africa." *Population and Development Review*:53-73.

Kenya National Bureau of Statistics & ICF Macro. 2010. *Kenya Demographic and Health Survey, 2008-09, Final Report*. Calverton, Maryland: Kenya National Bureau of Statistics and ICF Macro.

Kyobuntungi, C., A.K. Ziraba, A. Ezeh & Y. Ye. 2008. "The burden of disease profile of residents of Nairobi's slums: Results from a Demographic Surveillance System." *Population Health Metrics* 6(1): 8 pages.

Lloyd, C.B. and Niev Duffy. 1995. "Familial Risk Factors for Children." Pp. 71-93 in *Families in Focus: New Perspectives on Mothers, Fathers and Children*, edited by J. Bruce, C.B. Lloyd and A. Leonard. New York: The Population Council.

Lloyd, C.B. and S. Desai. 1992. "Children's living arrangements in developing countries." *Population Research and Policy Review* 11(3):193-216.

Madhavan, S., E. Schatz, S. Clark & M. Collinson. 2012. "Child mobility, maternal status, and household composition in rural South Africa." *Demography* 49: 699-718.

Madhavan, S. 2004. "Fosterage patterns in the age of AIDS: continuity and change." *Social Science & Medicine* 58(7):1443-1454.

McDaniel, A. and E. Zulu. 1996. "Mothers, fathers, and children: Regional patterns in child-parent residence in sub-Saharan Africa." *African Population Studies 11*:

Meth, P. "‘I don’t like my children to grow up in this bad area’: Parental anxieties about living in informal settlements." *International Journal of Urban and Regional Research*, 37(2): 537-555.

Monasch, R. and J.T. Boerma. 2004. "Orphanhood and childcare patterns in sub-Saharan Africa: An analysis of national surveys from 40 countries." *AIDS 18*(Supplement 2):S55-S65.

Mudege, N. & E. Zulu. 2011. "In their own words: Assessment of satisfaction with residential location among migrants in Nairobi slums." *Journal of Urban Health 88*(Supplement 2: Urbanization, poverty and health dynamics in sub-Saharan Africa: Insights from Nairobi slum settlements): S219-S234.

Muindi, K. E. Zulu, D. Beguy, N. Mudege & L. Batten. 2009. "Characteristics of recent in-migrants in the Nairobi Urban Health and Demographic Surveillance System." Paper presented at the XXVI IUSSP International Population Conference, September 27-October 1, 2009, Marrakech, Morocco.

Nelson, N. 2002. "Surviving in the city: Coping strategies of female migrants in Nairobi, Kenya." In *Urban Life: Readings in the Anthropology of the City (4th Edition)*, edited by G. Gmelch & W. Zenner. Prospect Heights, IL: Waveland Press.

- 1987. "Rural-urban child fostering in Kenya: Migration, kinship ideology, and class." Pp. 181-198 in *Migrants, workers and the social order*, edited by J. Eades. London: Tavistock Publications.

Rolleston, C. 2011. "Fosterage and access to schooling in Savelugu-Nanton, Ghana." Create Pathways to Access Research Monograph No. 59, The Institute of Education, University of London.

Page, H.J. 1989. "Childrearing versus Childbearing: Coresidence of Mother and Child in Sub-Saharan Africa." Pp. 401-441 in *Reproduction and Social Organization in Sub-Saharan Africa*, edited by R. Lesthaeghe. Berkeley: University of California Press.

Taffa, N., G. Chepngeno & M. Amuyunzu-Nyamongo. 2005. "Child morbidity and healthcare utilization in the slums of Nairobi, Kenya." *Journal of Tropical Pediatrics 51*(5): 279-284.

UN-Habitat. 2006. "Nairobi Urban Sector Profile." United Nations Human Settlements Programme Rapid Urban Sector Profiling for Sustainability. Nairobi, Kenya: UN-Habitat.

Vandermeersch, C. 2002. "Child fostering under six in Senegal in 1992-1993." *Population Vol. 57*: 659-685.

Zimmerman, F.J. 2003. "Cinderella goes to school: The effects of child fostering on school

enrollment in South Africa.” *Journal of Human Resources* 38(3): 557-590.

Zulu, E.M., A. Konseiga, K. Muindi, E. Darteh & B. Mberu. 2006. “Migration and the urbanization of poverty in sub-Saharan Africa: The case of Nairobi City, Kenya.” Paper presented at the Annual Meeting of the Population Association of America, L.A., USA, March 30-April 1, 2006.

Table 1: Characteristics of Mothers (n=10,248 women)

	Mothers				
	Child Lives With Mother	Child Does Not Live With Mother	Total		
	%	%	%	N	Sig.
Mother Reports Any Living Child Residing Away	--	--	24.12	2,472	
Mother's Age					***
12-19 Years	97.43	2.57	7.55	740	
20-24 Years	88.74	11.26	34.27	3,358	
25-29 Years	77.31	22.69	29.46	2,887	
30-34 Years	71.83	28.17	15.76	1,544	
35-39 Years	72.42	27.58	7.62	747	
40-44 Years	76.86	23.14	3.84	376	
45-49 Years	76.19	23.81	1.50	147	
Mother's Ethnicity					***
Kikuyu	85.68	14.32	31.94	3,121	
Luhya	81.47	18.53	15.14	1,479	
Luo	89.12	10.88	15.04	1,470	
Kamba	69.95	30.05	24.24	2,369	
Other	84.02	15.98	13.64	1,333	
Mother's Education					***
Never Attended School	89.47	10.53	2.98	285	
Primary School	82.21	17.79	69.65	6,668	
Secondary School or More	78.79	21.21	27.38	2,621	
Mother's Marital Status					
Formal Union	80.91	19.09	70.53	6,911	
Not in Formal Union	82.99	17.01	7.92	776	
Informal Union	84.22	15.78	4.20	412	
Divorced/Widowed/Separated	82.41	17.59	17.35	1,700	
Mother's Duration of Stay in DSA					***
Since Birth/10+ Years	88.93	11.07	14.94	1,464	
In DSA for 5 to 10 Years	86.42	13.58	13.83	1,355	
In DSA for 2 to 5 Years	84.20	15.80	14.66	1,437	
In DSA for 1-2 Years	80.89	19.11	6.67	654	
In DSA for 7-12 Months	77.82	22.18	22.18	2,173	
In DSA for 0-6 Months	76.62	23.38	27.72	2,716	
Slum Area					***
Korogocho	87.66	12.34	43.71	3,940	
Viwandani	76.88	23.12	56.29	5,074	
Relation to the Household Head					***
Self	80.20	19.80	8.09	793	
Wife	86.03	13.97	61.86	6,062	
Child/Grandchild	94.55	5.45	2.62	257	
Other Relative/Non-Relative	70.34	29.66	27.42	2,644	
Ownership of Dwelling					***
Owns Dwelling	89.54	10.46	11.88	1,071	
Rents Dwelling	80.52	19.48	88.12	7,943	

Significance: ***p<=0.001, **p<=0.01, *p<=0.05, +p<=0.10

Table 2: Characteristics of Children (n=19,791 children)

	Children				
	Child Lives With Mother	Child Does Not Live With Mother	Total		
	%	%	%	N	Sig.
Child's Gender					
Male	84.82	15.18	50.96	9,843	
Female	85.57	14.43	49.04	9,474	
Child's Birth Order					***
First	82.35	17.65	45.58	8,804	
Second	85.79	14.21	26.45	5,109	
Third	88.48	11.52	13.67	2,640	
Fourth	89.09	10.91	7.26	1,402	
Fifth or More	90.90	9.10	7.05	1,362	
Child's Age					***
Age 0-1 Year	98.74	1.26	23.00	4,443	
Age 2-3 Years	92.21	7.79	18.73	3,619	
Age 4-5 Years	83.65	16.35	15.99	3,089	
Age 6-10 Years	77.59	22.41	27.98	5,405	
Age 11-15 Years	70.77	29.23	14.29	2,761	
Who Child Lives With (if not Mother)					***
Father	--	4.38	0.64	124	
Grandparent	--	83.59	12.29	2,369	
Other Relative	--	8.15	1.20	231	
Boarding School	--	2.05	0.30	58	
Other	--	1.83	0.27	52	
Not Applicable (With Mother)	--	--	85.30	16,443	

Significance: ***p<=0.001, **p<=0.01, *p<=0.05, +p<=0.10

Table 3: Logistic Regression Results, Child Out-Fostered 2005-2009

	Model 1		
	OR	Std. Err.	Sig.
Mother's Characteristics			
Mother's Age			
20-24 Years (ref)	1.00	--	--
12-19 Years	0.68	0.19	
25-29 Years	1.03	0.09	
30-34 Years	0.91	0.10	
35-39 Years	0.96	0.14	
40-44 Years	0.92	0.18	
45-49 Years	1.03	0.29	
Mother's Ethnicity			
Kikuyu (ref)	1.00	--	--
Luhya	1.38	0.15	**
Luo	0.87	0.11	
Kamba	2.79	0.24	***
Other	1.19	0.14	
Mother's Education			
Never Attended School (ref)	1.00	--	--
Primary	1.48	0.35	+
Secondary or More	1.77	0.42	*
Mother's Marital Status			
Formal Union (ref)	1.00	--	--
Not in Formal Union	1.03	0.12	
Informal Union	0.86	0.14	
Divorced/Separated/Widowed	0.85	0.07	+
Children's Characteristics			
Child's Gender (male ref)	0.97	0.05	
Child's Age			
11-15 Years (ref)	1.00	--	--
6-10 Years	0.53	0.04	***
4-5 Years	0.28	0.03	***
2-3 Years	0.12	0.01	***
0-1 Years	0.02	0.00	***
Child's Birth Order			
First (ref)	1.00	--	--
Second	0.90	0.05	+
Third	0.80	0.07	*
Fourth	0.85	0.11	
Fifth or Greater	0.83	0.14	
Household Characteristics			
Slum Area			
Korogocho (ref)	1.00	--	--
Viwandani	1.79	0.14	***
Relation to the Household Head			
Self (ref)	1.00	--	--

Wife	2.09	2.32	
Child/Grandchild	2.79	3.21	
Other Relative/Non-Relative	4.96	5.49	
Ownership of Dwelling			
Owns Dwelling (ref)	1.00	--	--
Rents Dwelling	1.16	0.04	***
Migration Characteristics			
Duration of Stay			
Since Birth or 10+ Years (ref)	1.00	--	--
In DSA for 5-10 Years	1.04	0.14	
In DSA for 2-5 Years	1.74	0.24	***
In DSA for 1-2 Years	2.79	0.46	***
In DSA for 7-12 Months	3.72	0.48	***
In DSA for 0-6 Months	4.38	0.55	***

N (children)	17,532
n (women)	9,166

Significance: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, + $p < 0.10$

Models adjusted for clustering within mother.

Table 4: Logistic Regression Results, Child Out-Fostered 2005-2009 (Migrant Mothers)

	Model 1		
	OR	Std. Err.	Sig.
Mother's Characteristics			
Mother's Age			
20-24 Years (ref)	1.00	--	--
12-19 Years	1.11	0.42	
25-29 Years	0.96	0.13	
30-34 Years	0.87	0.15	
35-39 Years	0.92	0.23	
40-44 Years	0.83	0.32	
45-49 Years	0.62	0.32	
Mother's Ethnicity			
Kikuyu (ref)	1.00	--	--
Luhya	1.31	0.21	+
Luo	1.04	0.20	
Kamba	2.80	0.40	***
Other	1.03	0.19	
Mother's Education			
Never Attended School (ref)	1.00	--	--
Primary	0.04	0.04	***
Secondary or More	0.05	0.05	***
Mother's Marital Status			
Formal Union (ref)	1.00	--	--
Not in Formal Union	1.24	0.29	
Informal Union	1.11	0.37	
Divorced/Separated/Widowed	1.40	0.21	*
Children's Characteristics			
Child's Gender (male ref)	1.02	0.08	
Child's Age			
11-15 Years (ref)	1.00	--	--
6-10 Years	0.51	0.06	***
4-5 Years	0.27	0.05	***
2-3 Years	0.13	0.02	***
0-1 Years	0.01	0.00	***
Child's Birth Order			
First (ref)	1.00	--	--
Second	0.87	0.07	+
Third	0.81	0.12	
Fourth	0.68	0.15	+
Fifth or Greater	0.79	0.24	
Household Characteristics			
Slum Area			
Korogocho (ref)	1.00	--	--
Viwandani	2.05	0.27	***
Ownership of Dwelling			
Owns Dwelling (ref)	1.00	--	--

Rents Dwelling	1.21	0.11	*
Migration Characteristics			
Aim of Moving			
Here to Stay (ref)	1.00	--	--
Here for Awhile	1.60	0.31	*
Not Yet Sure	0.86	0.11	
Respondent's Previous Location			
Any Nairobi Slum (ref)	1.00	--	--
Nairobi Non-Slum	1.81	0.30	***
Other Urban Kenya	1.47	0.38	
Rural Kenya/Outside Kenya	1.55	0.23	**
Reason For Move to DSA			
To Be With Family (ref)	1.00	--	--
Better Conditions	2.85	0.66	***
Better Job/School Prospects	2.63	0.59	***
Low Cost of Living	1.51	0.29	*
Rent is Cheap	1.57	0.26	**
For a Change/Other Reasons	3.46	1.20	***
Previously Resided in the DSA			
Yes	1.00	--	--
No	1.20	0.16	
N (children)		4,804	
n (women)		2,863	

Significance: *** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$, + $p \leq 0.10$

Models adjusted for clustering within mother.