Maternal Migration and Child Fostering in sub-Saharan Africa

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Abstract

Increasing feminization of migration has resulted in substantial flows of female migration in Africa, increasing the importance of migration in women's lives. Though child fostering is an enduring feature of family life throughout Africa, few studies examine the role that maternal migration may play in these arrangements. I leverage Demographic and Health Survey data from 24 African countries to explore associations of maternal migration experience and fostering for children age 0-17, focusing on migrant status, stream, motivation, and timing of migration relative to children's birth to explore potential disruption introduced by migration. Results suggest maternal migration disrupts mother-child co-residence, with greater fostering among children with migrant mothers, particularly rural-urban migrants. Children born before migration experience the highest probability of fostering, consistent across migrant stream. These results suggest need for greater attention on impacts of maternal migration for children's living arrangements, particularly as flows of migration becoming increasingly feminized.

Key Words

Child Fostering, Migration, sub-Saharan Africa, Motherhood, Children's Living Arrangements

Introduction

Internal migration is an increasingly common experience for women throughout the world, including within sub-Saharan Africa (Cattaneo & Robinson 2020; Bell & Charles-Edwards 2013; Ghosh 2009). Women might move independently or alongside partners or parents for a variety of reasons, including both forced and voluntary mobility (Camlin et al. 2014; Beguy et al. 2010; Ghosh 2009). Migration might result from or alongside transitions like union formation or dissolution, seeking opportunities such as education or employment, or for other reasons. As greater numbers of women, many of whom have children or will in the future, are on the move, questions remain about whether mothers will migrate alongside their children or foster children to kin or others.

Decisions surrounding children's living arrangements and maternal migration are likely to be affected by characteristics of women's migration experiences, including whether migration is intended to be permanent or circular in nature, the type of destination, and the real or perceived difficulty of migrating and starting anew with children in the destination, as well as characteristics of mothers and their children, such as mother's marital status, her employment, the availability of kin support in her place of origin and destination, and children's age. Some mothers, especially those planning to migrate permanently, may be more likely to bring their children with them to the destination. Others who engage in more frequent, shorter-term migration may prefer to have children stay behind (Hall & Posel 2019). The type of destination may also dictate whether mothers migrate with children or foster them elsewhere. Mothers might want to bring children with them when migrating to urban areas where they might perceive greater advantages for their children, such as safer environments, better resources, and higher-quality schools and healthcare. If mothers assess potential dangers about their destination, they

might want to avoid migrating with children to areas where they believe children will be worse off, particularly as some migrant children are at increased risk of poor outcomes following migration (Majola et al. 2023; Anglewicz et al. 2019; Smith-Greenaway & Thomas 2014; Archambault et al. 2012; Bocquier et al. 2011; Kiros & White 2004; Brockerhoff 1994). Mothers may prefer to foster children to kin, even temporarily, to increase women's ability to find steady employment and stable housing and to adapt to the community before bringing children (Hall & Posel 2019; Blanc & Lloyd 1994). In other cases, mothers may plan to foster children more permanently to allow women to work without balancing childcare.

In this paper, I draw on Demographic and Health Survey (DHS) data from 24 countries in sub-Saharan Africa to explore how characteristics of maternal migration experience are associated with child fostering. First, I determine whether maternal migrant status is associated with greater fostering for children of migrant mothers relative to their non-migrant counterparts to understand potential disruption. Second, I examine the variation in fostering across maternal migration streams, comparing children of lateral streams (urban-urban, rural-rural) to children of non-lateral streams (urban-rural, rural-urban) and children of non-migrants to clarify the role of destination and potential disruption. Third, I explore the association between maternal migration timing and fostering, comparing fostering of children born before maternal migration to children born around the same time as maternal migration and children born after mothers migrated to their destination. Lastly, I look at the relationship between fostering and mothers' motivation for migration. Each of these questions delves into the potentially disruptive nature of maternal migration for children's living arrangements, highlighting the importance of considering the nuances of maternal migration where data allow.

Women's Migration in sub-Saharan Africa

The increasing feminization of migration throughout the world has resulted in substantial flows of female migration in countries in sub-Saharan Africa and elsewhere (Cattaneo & Robinson 2020; Hall & Posel 2019; Mberu 2016, 2005; Camlin et al. 2014; Beguy et al. 2010; Reed et al. 2010), increasing the role of migration in the lives of women. Women may migrate for education or employment (Lesclingand & Hertrich 2017; National Research Council and Institute of Medicine 2005), to fulfill personal desires for independence (Hertrich & Lesclingand 2013; Lesclingand 2011), or as a result of experiencing household shocks (Ronnkvist et al. 2023; Lindstrom et al. 2022; Becerra-Valbuena & Millock 2021; Anglewicz & Myroniuk 2018). Others may migrate in relation to family transitions such as marriage and having and raising children (McLean et al. 2023; Beegle & Poulin 2013; Clark & Cotton 2013; Ezra & Kiros 2001). Though women have often been considered tied migrants, moving alongside male partners or other family members (McLean et al. 2023; Findley 1997; Findley & Williams 1991), many women migrate independently in pursuit of personal and household goals (Lesclingand & Hertrich 2017; Clark & Cotton 2013).

While migration in sub-Saharan Africa is often conceptualized as rural migrants moving to cities, a variety of migration streams are common, with migrants moving not only from rural to urban areas, but also from cities to villages and within urban and rural zones (Ochieng et al. 2022; Catteneo & Robinson 2020; Potts 2010). As a result, migrants might move in any of four streams: laterally within rural or urban areas, or non-laterally between different types of communities (i.e., rural-urban or urban-rural migration). Women may migrate permanently to new locations, or they may participate in step-wise migration (moving to increasingly large communities) or in circular or oscillating migration (moving between their place of origin and destination), which may complicate migrating with children (Beguy et al. 2010; Potts 2010).

Women migrating to certain destinations, particularly urban areas where informal slum settlements are often the gateway to the city, may wish to avoid exposing children to unknown conditions (Konseiga et al. 2009) In addition, the drivers of migration may impact mothers' ability to bring children along when they migrate. For some women, migration might mean initially leaving children behind until they are able to bring children to co-reside in the destination, or sending back children if living together becomes unfeasible.

From previous research, a great deal is known concerning the impact of African women's migration on their transitions to adulthood (Engebretsen et al. 2020; Lesclingand & Hertrich 2017; Beegle & Poulin 2013; Clark & Cotton 2013; Hertrich & Lesclingand 2013), their fertility (Banougnin et al. 2018; Anglewicz et al. 2017; Chattopadhyay et al. 2006; Gyimah 2006; Brockerhoff & Yang 1994), their reproductive health outcomes (Cotton 2019; Cau 2016; Greif & Dodoo 2011; Brockerhoff & Biddlecom 1999), and the health and well-being of their children (Cockx 2022; Anglewicz et al. 2019; Smith-Greenaway & Madhavan 2015; Bocquier et al. 2011; Antai 2010; Kiros & White 2004; Ssengonzi et al. 2002; Brockerhoff 1994). This body of research suggests that the characteristics of women's migration, including the destination, stream (between origin and destination), and timing of migration relative to the outcome of interest, should be considered when seeking to understand the role of migration in the lives of women and their families.

Child Fostering and Maternal Migration

Through sub-Saharan Africa, many children experience child fostering or living apart from their biological mothers at some point during childhood (Cotton 2021; Gaydosh 2015; Madhavan 2004; McDaniel & Zulu 1996; Lloyd & Desai 1992; Page 1989; Isiugo-Abanihe 1985). Though the experience is common in virtually all African countries and among the

majority of ethnic groups, there is tremendous variation in the prevalence of fostering and how it is practiced. For example, about 11% of mothers have a currently out-fostered child in Burundi, while more than 45% of Namibian mothers report at least one child lives elsewhere (Cotton 2021).

Mothers may rely on child fostering as a childrearing strategy for a variety of reasons that result from 'crisis' or occur for 'purposive' or voluntary reasons (Goody 1982). Children might be fostered to avoid exposure to crises when parents die (Grant & Yeatman 2012; Beegle et al. 2010; Madhavan 2004), due to economic difficulties (Akresh 2009; Eloundou-Enyegue & Stokes 2002), or when parents divorce or remarry (Cotton et al. 2022; Grant & Yeatman 2014). Children might be sent voluntarily to live elsewhere for education (Alber 2018; Lloyd & Blanc 1996) or social or economic mobility (Eloundou-Enyegue & Stokes 2002; Bledsoe 1990a), to receive or provide kin support (Cotton et al. 2022; Brown 2011; Alber 2004; Ainsworth 1996), to work in informal or formal jobs (Kassa & Abebe 2016; Jacquemin 2009; Erulkar et al. 2006) or to balance fertility among kin networks where some families have many children and others have few or none (Cotton 2024; Isiugo-Abanihe 1994; Bledsoe 1990b). In many cases, fostering arrangements are part of complex connections within kin networks, providing ties between biological parents and their kin and allowing parents to leverage such ties to provide childcare, particularly when it would benefit parents themselves or their children (Cotton et al. 2022; Alber 2018; Verhoef 2005; Notermans 2004).

Though child fostering is an enduring feature of family life throughout sub-Saharan Africa, few studies have explicitly explored the role that maternal migration may play in fostering arrangements beyond including it as a potential control variable in analyses. Existing literature indicates that children of migrant women are more likely to be fostered than children of

non-migrants (Cotton et al. 2022; Vandermeersch 2002), particularly when mothers are recent migrants to rural areas (Vandermeersch 2002). Some research has explored maternal migration as a form of parental absence, delving more thoroughly into how children's living arrangements might be impacted by mothers migrating. In Tanzania, maternal migration is associated with children's experiences of maternal absence (Gaydosh 2015), with maternal migration the most common cause of maternal absence by age 10 for children of single mothers and the third most common cause for children born in two-parent households. In South Africa, where robust migration patterns for men and women continued after the end of Apartheid, there is a long history of family separation due to migration, with mothers frequently migrating for work and leaving children with kin or children migrating themselves (Madhavan et al. 2023; Hall & Posel 2020, 2019, 2012; Bennett et al. 2015a; Madhavan et al. 2012; Posel & Casale 2003). Even when children reside with migrant parents, they often arrive years after parents' initial migration, suggesting that separation might be driven by the early conditions of the migration experience (Bennett et al. 2015b). While maternal migration might separate children from their mothers as mothers move away (Hall & Posel 2019), maternal migration also spurs child mobility, with children of migrant mothers at greater risk to move from origin households than children of co-resident mothers (Madhavan et al. 2012). Beyond sub-Saharan Africa, the migration of mothers often leads to long periods of separation from children. For example, in China, where there are legal barriers to family migration through the hukou system, many migrant mothers leave children in the care of rural grandparents, often resulting in poor well-being for left-behind children (Yue et al. 2020; Lu et al. 2019; Liu & Erwin 2015; Lu 2012).

Though internal migration greatly outpaces international migration (Bell & Charles-Edwards 2013; Ghosh 2009), much of the research on African children's living arrangements

and maternal migration has focused on transnational families (Apatinga et al. 2022; Vives & Vasquez-Silva 2017; Coe 2013; Drotbohm 2013; Åkesson et al. 2012). Certainly, from the literature on international migration, it is clear that migration is often associated with leaving children, requiring mothers to perform long-distance mothering during periods of separation (Vives & Vasquez-Silva 2017; Haagsman & Mazzucato 2014; Åkesson et al. 2012). This body of research, though focused on international mobility, helps contextualize why internal migrant mothers might live separately from children, even when distance and legal barriers to family migration may be less significant. When mothers migrate for employment, leaving children at home may facilitate job-seeking and open additional employment opportunities as mothers do not need to balance caregiving and productive labor. Other mothers might choose to migrate alone to establish themselves and settle prior to bringing children to co-reside. Some women might participate in circular migration patterns between their origin and destination, making family migration difficult. Similar patterns have been documented for men migrating internally within African countries, where leaving children behind or sending them back from urban destinations is common, and households might be 'stretched' across multiple urban and rural locations (Gaydosh 2017; Yabiku et al. 2012; Owuor 2007; Ramphele & Richter 2006; Agesa 2004). Much of this literature, however, indicates children of male migrants often remain in the care of mothers, so it is less clear how maternal migration might impact children's living arrangements.

Competing Explanations for Migration's Influence on Women's Decisions

In studies exploring the influence of women's migration on health outcomes and fertility, in particular, framing often focuses on four common hypotheses of migration's potential role: socialisation, selection, disruption, and adaptation. These competing explanations of migration's

impact on women's behavior may aid in understanding how maternal migration might be associated with child fostering, although it should be noted that fostering is a substantially different outcome versus children's health and mortality, women's healthcare-seeking, and women's fertility desires. Still, mothers' decisions about children's living arrangements may be shaped by some of the same factors that result in migration influencing other outcomes.

The socialisation hypothesis, typically focusing on fertility, suggests that outcomes and behavior of migrants will be most similar to their counterparts in their place of origin, as norms and ideals are thought to be strongly shaped early in life, and are unlikely to change immediately following migration (Odimegwu & Adeyowin 2020; Anglewicz et al. 2017). While norms about childrearing and child fostering may be engrained in childhood and early adulthood, migration may drive decisions about fostering based on the difficulty of the migration experience that might contradict women's previous norms and ideals about childrearing. In addition, to fully test a socialisation perspective requires access to information about women's childhood place of residence, which is rarely collected in most household surveys.

Migrant selection proposes that migrants are distinct from non-migrants in their origin community, selected for migration by key characteristics that may influence mobility and other behaviors (Anglewicz et al. 2017; Smith-Greenaway & Thomas 2014; Chattopadhyay et al. 2006; Gyimah 2006; Ssengonzi et al. 2002). Such characteristics might include observed characteristics like education and wealth, where more educated and wealthier individuals are more likely to migrate than their less educated and poorer counterparts at origin, as well as potentially unobserved characteristics such as desire for upward mobility or willingness toward risk-taking (Brockerhoff & Biddlecom 1999). These characteristics may also be associated with child fostering, though mothers with higher education and greater resources may be less, not

more, likely to foster-out their children. Conversely, mothers who are most 'at risk' of fostering their children may also be those most likely to need to migrate. For example, women living in poverty might find themselves needing to migrate to find employment or higher wages; they may equally be those most likely to rely on kin to foster their children to reduce some of the burdens of childrearing with few resources. Thus, migrant selectivity may provide a useful framework for exploring differences in fostering by maternal migrant status, as variation in fostering behaviors between non-migrants and migrants may be explained by maternal characteristics.

The disruption hypothesis posits that migration introduces tremendous change and disruption into women's lives, which may thus affect their decisions, behaviors, and outcomes (Cotton 2019; Smith-Greenaway & Thomas 2014; Chattopadhyay et al. 2006; Gyimah 2006; Ssengonzi et al. 2002). When it comes to outcomes such as fertility, the disruption hypothesis suggests that the process of migration itself interferes with the outcome. The act of migration may be disruptive, potentially rupturing women's connections with family and kin support, interfering with employment prospects, and changing daily routines (Cotton & Beguy 2021; Madhavan et al. 2018; Hall & Posel 2019). Certain kinds of migration experience may be particularly disruptive, namely moves that occur non-laterally between different types of communities (e.g., rural-urban or urban-rural migration), given the potential differences in origin and destination communities. The disruption hypothesis may offer the most useful framework to understanding potential links between maternal migration and fostering, as migration may result in mothers deciding to foster-out children to avoid exposing children to stresses of migration or to provide a safe location for children while mothers move. Fostering may also allow mothers to manage their transition more effectively during and after migration, providing opportunities to seek employment and stable housing without the added work of caring and providing for

children. The timing of migration in a child's life may impact use of fostering, as children born before mothers' migration may be at greater risk of being fostered versus children who are born around time of migration or particularly after mothers have arrived in destinations. It should be noted that women's migration, though potentially disruptive, may also bring potential advantages to women and their children, whether children migrate with mothers or stay elsewhere. For example, migration may open up opportunities for women to pursue education or employment (Lattof et al. 2018; Beegle & Poulin 2013; Clark & Cotton 2013; Hertrich & Lesclingand 2013), improve access to key services for women and children (Cockx 2022; Cotton 2019; Smith-Greenaway & Madhavan 2015), and may have positive impacts on children through access to resources or through remittances (Ferrone & Giannelli 2023; Lu & Treiman 2011).

The adaptation perspective suggests that women's behaviors may change after migration as they settle in and acclimate to their new community (Boujija et al. 2024; Cotton 2019; Smith-Greenaway & Madhavan 2015; Chattopadhyay et al. 2006; Brockerhoff 1994). With regard to outcomes like fertility, this hypothesis proposes that migrant behaviors change over time as migrants adapt, becoming more similar to behavior of those in the destination than their left-behind non-migrant counterparts. In the case of fostering, with longitudinal data on children's living arrangements, it may be possible to determine whether adaptation to the destination plays a role, with potentially greater fostering initially (due to disruption) but greater co-residence over time as mothers find work and housing and settle into their destination. It is unclear, however, whether migrant mothers might adapt to behaviors of those in the destination as fostering may be less influenced by social norms among non-migrants and more by broader social acceptability, kinship obligations, and cultural expectations

In this article, I frame the analyses and findings broadly through a disruption perspective for both methodological and conceptual reasons. Methodologically speaking, modeling the implications of maternal migration through socialisation, selection, and adaptation hypotheses can be difficult given sparsity of high-quality, detailed longitudinal or retrospective data in sub-Saharan Africa. Few data sources collect detailed migration histories or measures of socio-demographic characteristics before and after migration, which presents empirical challenges to testing theories of socialisation, selection and adaption. For example, to fully test the implications of wealth as a means of migrant selection on child fostering, analyses would require measures of wealth prior to and after migration and/or fostering occurs, particularly as migrants may gain or lose wealth through the migration process (i.e., a poor mother might foster her child when migrating, find well-paid employment, and have higher wealth at time of survey). Many studies rely on measures of duration of residence to examine adaptation processes, which may work well for outcomes such as fertility or healthcare-seeking, but is of limited use to study fostering unless the specific timing of fostering episodes is available. Without information on when fostering began relative to migration, researchers cannot be certain whether fostering preceded migration, whether children migrated with mothers and were sent back, and so on. Thus, for methodological reasons, I cannot accurately test these competing hypotheses, nor can I explicitly test the disruption perspective, though I can rely on this approach to frame the analyses and findings conceptually. Drawing on the disruption approach, I anticipate that migration might be disruptive to maternal-child co-residence through the act of maternal migration itself, through the nature of migrant stream (i.e., whether mothers migrate to similar or different kinds of destinations relative to their place of origin), and through the timing of migration relative to each

child's birth (i.e., whether children are born before migration, during the same time period, or after migration) regardless of mothers' duration of residence.

Using this conceptual perspective of disruption, I seek to test the following hypotheses that aim to disentangle to how fostering arrangements might be shaped by maternal migrant status, stream, timing of migration relative to birth, and motivation for migration:

1. Maternal migration will be associated with greater child fostering, such that children of migrants will be more likely to be fostered than children of non-migrants.
2. The probability of being fostered by migration status will differ across rural and urban destinations and by lateral and non-lateral migration, such that children of migrants to urban areas will have a greater likelihood of being fostered than children of migrants to rural areas, and children of non-lateral migrants will have a greater likelihood of being fostered relative to children of lateral migrants.
3. The timing of maternal migration will influence the probability of fostering, such that children born before migration will have greater likelihood of being fostered compared to children born after or around migration.
4. Relatedly, the effect of migration timing will differ across migrant streams, such that fostering will be greater for children born before non-lateral migration versus those born before lateral migration, and fostering will be lower among children born around or after lateral migration than for children born around or after non-lateral migration.
5. The motivation for migration will impact the probability of fostering, such that children of mothers who migrate for economic reasons (employment or education) will be more likely to be fostered than children of mothers who migrate for family reasons (marriage or reunification) or for other reasons.

Data & Methods

To explore the relationship between dimensions of maternal migration experience and child fostering, I rely on the most recent Demographic and Health Surveys (DHS) collected in 24 African countries between 2015 and 2023. Data are publicly available upon request via the DHS program (ICF 2015-2023). The DHS are household-based nationally-representative surveys conducted in low- and middle-income countries, generally using a multi-stage probability sampling approach (Croft et al. 2018). Countries were selected based on availability of migration-related measures. As a result, countries are primarily in West Africa (11), Northeast Africa (6), South and Southeast Africa (5), with just two in Central Africa. The list of included countries, year of survey, and sample size of children age 0 to 17 are shown in Table 1. Though migration is not a core focus of the DHS program and no detailed migration histories are collected, the data provide a number of key variables to measure migrant status, stream, and timing (Bocquier 2016). I use data drawn from the women's questionnaire, including the birth history data which provides information on all children ever born. Children were eligible for inclusion in the sample if they were alive and under the age of 18 and if their living mother was a de-jure resident of a DHS household.[i] After removing children who have died, those above age 17, and those whose mothers are not de-jure household residents, the total sample across the 24 countries was 785,962 children born to 264,458 mothers.

The dependent variable for all analyses was whether a child is fostered away from the mother. In mothers' birth histories, for all children, mothers were asked whether the child lived with her or lived elsewhere. I used this measure of residence to create an indicator of fostering, where children who lived with mothers are categorized as "not fostered" and children who lived elsewhere are coded as "fostered." Because this was measured for each individual child, some

mothers had both fostered and co-resident children. I limited the sample to children under age 18, to avoid over-estimating fostering for older children who live independently. It is important to note that the DHS only collects this measure of child residence with no further detail on how long a child has lived away, who the child resides with, or the motivations for these arrangements. Nonetheless, the measure of child residence allowed for a limited understanding of fostering, which is useful particularly for cross-national comparisons.

I used several measures of maternal migration experience to understanding the role of any migrant experience, the stream of migration between origin and destination, and the timing of migration relative to the birth of each child. To determine whether the mother was a migrant in her destination, I used responses women provided to the question "How long have you been living continuously in (name of current city, town or village of residence)?" Women either indicated they had always lived there, and were coded as non-migrants, or provided a numeric response of years. Women who reported any numeric response were coded as migrants. It should be noted that this categorized all women who were not born in the destination as migrants, including those who migrated in early childhood.[ii]

To better understand how migration to versus within rural and urban areas may impact fostering, I created a measure of migrant stream that differentiated between rural and urban non-migrants, rural-rural migrants (who moved between rural communities), urban-urban migrants (who moved between cities or towns), urban-rural migrants (who moved from cities to rural areas), and rural-urban migrants (who migrated from rural areas to urban centers). This measure was constructed by comparing women's responses about type of place of previous residence to the type of current residence (urban or rural). Wording for type of previous residence varied slightly across each survey, with most countries asking a question similar to "Just before you

moved here, did you live in a city, in a town, or in a rural area?" These responses were categorized into urban (city, town) or rural. Those who were non-migrants and resided in rural areas were coded as rural non-migrants, the reference. Those who migrated between rural communities were rural-rural migrants, while those who migrated from urban areas to rural zones were urban-rural migrants. In urban areas, non-migrants were those who had always lived in the same urban area, while urban-urban migrants had migrated between cities and towns and rural-urban migrants had migrated from rural to urban areas. Thus, this measure of migrant stream included non-migrants (rural, urban), lateral migrants (rural-rural, urban-urban), and non-lateral migrants (rural-urban, urban-rural). A number of children had mothers who migrated from abroad (approximately 2.7% of the total sample). Given that international migration often has substantively different characteristics and barriers, these children (21,096 in total) were excluded from analyses, particularly as I could not ascertain whether mothers migrated from urban or rural communities in their original location nor the country of origin in most DHS.[iii] I further restricted the sample to children whose mothers migrated in the ten years prior to time of survey. Focusing on more recent migrations reduces the period between migration and survey, ensuring that conditions at time of survey may more closely approximate mothers' experiences around fostering and migration. This provided a total analytic sample of 592,523 children aged 0 to 17 years whose mothers were non-migrants or who had migrated only internally in the previous 10 years.

Though many studies rely on measures of duration of residence when examining the processes of adaptation and disruption related to migration, a better measure when considering the role of migration in fostering arrangements might be to consider the timing of migration relative to when children are born, which may more accurately capture the connection between

migration and fostering, and indeed the potential disruption that migration may cause for children's living arrangements. To consider timing of maternal migration episodes relative to a child's birth, I constructed a variable that compares children of non-migrants to children born before the migration episode, children born around the same time as the migration episode, and children born after mothers arrived in the destination. This is an imperfect measure, as the DHS does not generally collect details of the migration episode that would allow for a more definitive measure such as specific year of migration. Given that the DHS asks women to report the number of years they have continuously lived in the destination, I subtracted each child's age in years from the number of years mothers had lived in the community to determine approximate timing of migration relative to the child's birth. Thus, a one-year-old child born to a mother who has lived in the destination for eight years is categorized as "born after migration," while a 12-year-old child born to that same mother is categorized as "born before migration." Children whose age matched the duration of residence were categorized as "born around time of migration." As the DHS does not collect data on where a child is born, it cannot be determined whether children are born in the origin, in the destination, or elsewhere. It is important to note that the DHS data cannot be used to assess actual timing of fostering arrangements relative to migration or the duration of fostering, only the timing of migration relative to the child's birth. Without more in-depth detail on migration and child residence, this measure provided the best opportunity to explore the relationship between timing of migration and likelihood of fostering.

A final set of analyses explored the interconnection between migrant stream and timing of migration by creating a variable that distinguishes children born before migration from children born around or after migration across each migrant stream. Thus, I compared children of rural-rural migrants born before migration to children of rural-rural migrants born around or after

migration, as an example. This variable included children of rural non-migrants as the reference, urban non-migrants, rural-rural migrants (born before, same time, after), urban-rural migrants (born before, same time, after), urban-urban migrants (born before, same time, after), and rural-urban migrants (born before, same time, after).

To explore the relationship between migration motivation and child fostering, I turned to a sub-sample of countries where limited data on motivations were collected (Burkina Faso, Cote d'Ivoire, Ghana, Kenya, and Tanzania). In these surveys, the DHS asked women to identify why they moved to their current location. Reasons offered across countries varied slightly, but all countries included employment or economic reasons, education/training, marriage formation, family reunification or other family reasons, forced displacement, and other reasons. Additional reasons in certain countries included natural/environmental disaster, repatriation after conflict, or better services; I recoded the latter to "other reasons" and the two former reasons to "forced displacement" and create a category of "non-migrant" for reference. Due to small sample size for those migrating for education, I recoded these to "economic reasons." This variable allowed limited comparison for migration driven by economic or family reasons, or by force. These models were limited to the non-migrants and migrants in the five countries where data were available, and included all controls described below.

Several control variables were included. First, in Model 1, I controlled only for child's age and gender and mother's age, aiming to examine the direct effect of migration net of other predictors that may be associated with migrant status. In all other models, I additionally controlled for mother's marital status (currently, formerly, or never married), total number of children under 18, educational attainment (none, primary, secondary or more), whether mothers were employed, and current household wealth quintile.[iv] I also controlled for mother's

relationship to household head, comparing mothers who were head of household to wives of heads, close relatives (daughters, sisters, granddaughters, mothers, and in-laws of these categories) and distant or non-relatives (other relatives, fostered children, non-relatives, domestic workers). In Model 1 and 2 (migrant status), Model 4 (migrant timing relative to birth), and Model 6 (migrant motivation), I controlled for mothers' residence in an urban or rural area. I further controlled for survey (country and year). These country-level fixed effects allowed me to control for unobserved factors that might influence maternal migration or child fostering that vary across included countries. The proportions of children who were fostered and who had migrant mothers across each country are shown in Table 1, while descriptive characteristics of the pooled sample are shown in Table 2.

All models used multivariate logistic regression, with fostering at the child-level as the outcome. I ran five models using the pooled sample of 24 countries, accounting for the complex survey design using weights, primary sampling units, and strata as appropriate (Croft et al. 2018); weights were proportional to the child population in each country. Model 1 and Model 2 used migrant status to predict fostering at the child-level (first without time-of-survey controls, second including these controls), while Model 3 relied on migrant stream as the explanatory variable and Model 4 used timing of migration relative to birth. Model 5 used the combined measure of migrant stream and timing of migration. The final model, Model 6, examined migrant motivation in the five countries with available data. Principle results on the migration measures are presented in odds ratios for ease of interpretation in Table 3; full models with all controls are shown in Appendix A. Because I was primarily interested in the comparisons within rural and urban areas and across migrant experiences, the predicted probabilities of fostering by each

category of the independent variables are graphed in Figure 1 (Panels 1-5) to allow for comparisons.

Results

Table 1 shows the weighted proportions of children who are fostered and whose mothers are migrants (regardless of timing or stream). The percentage of children fostered ranges from 6% in Burundi to 28% in Liberia. There is substantial range in the proportion of children with migrant mothers, from 18% in Guinea to 78% in Rwanda and Uganda. In the pooled sample, over 14% of all children are fostered (see Table 2). Approximately 35% of children have a migrant mother, with larger proportions of children having a rural-rural migrant mother (13.8%) versus an urban-urban (10.4%), urban-rural (6.0%), or a rural-urban migrant (4.9%). More than 17% of children were born before mothers last migrated, while 2.7% were born around time of migration and about 15% were born a year or more after migration. Roughly half of children are girls, and more children are age 0 to 4 years (37%) versus 5 to 9 years (31.1%), 10 to 14 years (22.5%), or 15 to 17 years (9.5%). Other characteristics of mothers are shown in Table 2.

The results of pooled analyses for all countries are shown in Table 3. In Model 1, controlling only for mother's age and type of residence and children's age and gender, children of migrant mothers are two times as likely to be fostered versus children of non-migrants. In Model 2, adding additional maternal characteristics, the odds of being fostered by maternal migrant status increases slightly (OR 2.05). In Model 3, children of all migrant streams have significantly higher odds of being fostered than children of rural non-migrants, while children of urban non-migrants are less likely to be fostered (though this is significant only at the 10% level). In Model 4, timing of migration relative to child's birth is significantly associated with fostering. Compared to children of non-migrants, children born before maternal migration have

significantly greater odds of being fostered (OR 2.8), and children born around time of migration have 15% higher odds of being fostered. Conversely, children born after migration are about 29% less likely to be fostered versus children of non-migrants. In Model 5, I examine interconnections of migrant stream and timing. Relative to children of rural non-migrants, children born before maternal migration are significantly more likely to be fostered regardless of migrant stream. The majority of children born after maternal migration are not significantly different from children of rural non-migrants when it comes to fostering; the exception are children of rural-urban migrants born after migration, who are 1.72 times as likely to be fostered versus rural non-migrants. For most children, being born around time of migration significantly decreases the odds of being fostered relative to children of rural non-migrants (ORs 0.56 for rural-rural, 0.67 for urban-rural, and 0.84 for urban-urban), though this is not the case for children of rural-urban migrants born around migration. Relative to children of non-migrants in Burkina Faso, Cote d'Ivoire, Ghana, Kenya, and Tanzania, children of those who migrate for all reasons except forced displacement are significantly more likely to be fostered. The odds of fostering by child and mothers' characteristics are largely consistent across models (see Appendix A). Older children are more likely to be fostered versus children aged 5 to 9 years, while children younger than 5 years are significantly less likely to be fostered; girls are more likely to be fostered than boys. Children of never and formerly-married mothers have higher odds of fostering relative to children of married mothers. Having a mother who is working is associated with greater odds of fostering. The children of mothers who are wealthier are less likely to be fostered than their poorest counterparts. Children of mothers who are the wives of household heads are significantly less likely to be fostered than children whose mothers are heads, while children of close relatives and children of distant or non-relatives are significantly

more likely to be fostered (varying across models; for example in Model 2, ORs 1.3 and 4.3 respectively).

Hypothesis 1: Maternal migration will be associated with greater child fostering.

I turn now to the predicted probabilities of being fostered by maternal migration experience which allow comparisons across all migrant streams and timing, displayed in Figure 1. In Panel 1, the probability of a child being fostered is significantly higher for children of migrants than for children of non-migrants (0.15 versus 0.08), confirming the hypothesis that children of migrants are more likely to be fostered, which may indicate that migration disrupts maternal-child co-residence.

Hypothesis 2: The probability of being fostered by migration status will differ across rural and urban destinations and by lateral and non-lateral migration.

To assess whether children of non-lateral migrants are more likely to be fostered than children of lateral migrants, Panel 2 shows the probability of being fostered by maternal migrant stream. There are clear differences between children of non-migrants, children of lateral migrants (rural-rural, urban-urban), and children of non-lateral migrants (rural-urban, urban-rural). Children of non-lateral migrants (urban-rural, rural-urban) have significantly higher probabilities of being fostered relative to both their non-migrant and lateral migrant counterparts within the same type of place. Across migrant streams, children of rural-urban migrants and urban-rural migrants have the highest probability of being fostered (0.18 and 0.15, respectively) while children of rural-rural and urban-urban migrants have the lowest probabilities (0.14 for both). Comparing children of non-lateral and lateral migrants with rural origins (i.e., rural-rural and rural-urban) suggests that migration stream supports significantly different probability of

fostering, potentially because of the substantial difference in environment for those migrating to cities. Comparing those with urban origins (i.e., urban-urban and urban-rural) demonstrates that moving from cities to rural areas is associated with greater fostering, with children of urban-rural migrants having a significantly greater probability of being fostered versus urban-urban migrants (0.15 versus 0.14). This confirms the hypothesis that the likelihood of being fostered is higher in urban versus rural locations and that children of non-lateral migrants have a greater probability of being fostered compared to children of lateral migrants.

Hypothesis 3: The timing of migration will influence the probability of fostering.

In Panel 3, I explore the role of migration timing relative to children's birth on fostering. Children born before maternal migration have the highest probability of being fostered (0.21) relative to children born around time of migration (0.10), children of non-migrants (0.08), and children born after mothers have migrated (0.06). The predicted probability of a child being fostered is significantly different across each of these categories. This confirms that children born prior to migration have an elevated probability of being fostered relative to other children, but children born around time of migration are significantly less likely to be fostered versus their born-before counterparts. This may result from mothers leaving children behind when migrating, at least initially. Mothers who intend to migrate more long-term may choose to keep their children with them, particularly if they migrate to join partners and start families, which may explain the lower probability of fostering for children born around or after migration. Those born after migration have a significantly lower probability of being fostered than children of non-migrants.

Hypothesis 4: The effect of migration timing will differ across migrant streams.

In Panel 4, I examine the interconnection between maternal migrant stream and timing on fostering. The same trends seen for timing in Panel 3 broadly hold within each migrant stream and across destinations, with some key differences. Looking first among those now residing in rural areas, there is a significantly higher probability of being fostered for children born before migration among both lateral and non-lateral migrants relative to non-migrants, those born around time of migration, and those born after, as in Panel 3. There is no difference in the probability of being fostered between rural-rural and urban-rural children born before migration, suggesting that contrary to expectation, stream is not necessarily as important as timing. Notably, however, children of rural-rural and urban-rural migrants born around time of migration are not significantly different from rural non-migrants when it comes to the probability of being fostered. Children born after migration, whether rural-rural or urban-rural, have significantly lower probability of being fostered versus children of rural non-migrants, though in line with expectation, those of urban-rural migrants have a higher probability of being fostered versus children of rural lateral migrants.

Turning to children of mothers now living in urban areas, the patterns of timing of migration relative to birth seen in Panel 3 hold for children of both lateral (urban-urban) and non-lateral (rural-urban) migrants, where children born before migration have a significantly higher probability of being fostered relative to children born around or after migration. Children born before mothers migrate from rural to urban areas have a significantly higher probability of being fostered than their lateral urban-urban counterparts (0.25 versus 0.18), confirming the hypothesis that stream remains important after accounting for timing. Among children born before, around or after migration, the probability of being fostered is significantly higher for children of non-lateral (rural-urban) versus lateral (urban-urban) migrants, suggesting the potentially greater

disruption of non-lateral migration holds for these children. Children born after rural-urban migration and those born after or around urban-urban migration do not have significantly different probabilities of being fostered versus children of urban non-migrants.

Hypothesis 5: The motivation for migration will impact the probability of fostering.

In Panel 5, I explore the probability of being fostered by migration motivation among children in Burkina Faso, Cote d'Ivoire, Ghana, Kenya, and Tanzania. Children of mothers who migrated for employment or education have the highest probability of being fostered (0.24), which may reflect mothers' difficulty balancing childcare with economic activities. Interestingly, children of mothers who moved to get married have the next highest probability of being fostered (0.16), significantly higher than the probability of fostering for children whose mothers migrated for other family reasons (0.12), other reasons (0.12), or due to forced displacement (0.10); the latter have similar probability of being fostered as children of non-migrants. This confirms the hypothesis that children whose mothers migrate for economic reasons will be those most likely to be fostered, but the elevated probability for marriage migration versus other familial migration is somewhat unexpected. It may be the case that these children have mothers who have migrated for remarriage after union dissolution, which has been linked to fostering in previous studies (Grant & Yeatman 2014).

Discussion

While child fostering is an established form of childcare used by mothers throughout Africa (Cotton 2021; McDaniel & Zulu 1996; Page 1989), little attention has been paid to how dimensions of maternal migration may influence arrangements that mothers make for their children. Women's migration has grown significantly as a share of overall internal migration in

many African countries (Bell & Charles-Edwards 2013), increasing the need to better understand how characteristics of maternal migration, including migrant status, stream, and timing relative to children's birth, may shape both how disruptive migration may be for maternal-child co-residence and how migration impacts where children live.

In this paper, I addressed five hypotheses concerning the potentially disruptive nature of maternal migration for children's living arrangements. The first hypothesis seeks to understand whether having a migrant mother is associated with higher probability of fostering. I establish that children whose mothers have migrated have higher probability of being fostered than children of non-migrants, suggesting that migration may generally be disruptive to mother-child co-residence. This is in line with previous literature that, though not always focusing explicitly on migration, showed that children of migrants are more likely to live in separate households from their parents (Cotton et al. 2022; Bennett et al. 2015b; Madhavan et al. 2012; Vandermeersch 2002). This may occur because mothers are migrating for reasons that may make co-residing with children difficult, such as looking for or beginning employment, or for family-related transitions, including divorce or remarriage (Cotton & Beguy 2021; Hall & Posel 2019; Beegle & Poulin 2013). Some mothers may plan to assess conditions of their destination prior to exposing children to new environments, aiming to initially migrate alone and later reunite with children after mothers have acclimated to the destination (Hall & Posel 2019; Bennett et al. 2015b).

The second hypothesis explores the role of maternal migration streams, considering how place of origin and destination might influence child fostering. I find that there are significant differences in fostering across rural and urban destinations and by lateral and non-lateral migration streams. Looking at each destination, there is a clear step-wise difference in the

probability of fostering, where children of non-lateral migrants are more likely to be fostered than children of lateral migrants, who are in turn more likely to be fostered than children of non-migrants. This suggests that not only is migration potentially disruptive for maternal-child co-residence, this disruption operates differently across migrant streams. As might be expected, migrating between two different types of locales, particularly from a rural origin to an urban destination, may be linked to greater disruption due to differences between these kinds of communities. When making comparisons to those from similar origins, it is clear that children of non-lateral urban migrants moving to rural areas are more likely to be fostered as their counterparts with mothers who migrate within urban areas. Children of rural-urban migrants are those most likely to be fostered, suggesting that this form of non-lateral migration may be particularly disruptive, given the substantial change in environment.

With the third hypothesis, I examine how maternal migrant timing relative to a child's birth may be associated with different experiences of fostering. The timing of migration strongly influences whether children are fostered, with those born before mothers become migrants significantly more likely to be fostered than all other children. Interestingly, though children born around time of migration are more likely to be fostered versus children of non-migrants, children born after migration are less likely than all other children to be fostered. This suggests children exposed to migration either as young infants or while their mothers are pregnant do experience some disruption to mother-child co-residence, but far less disruption than children born ahead of maternal migration. Indeed, the probability of being fostered is more than twice as high for children born before versus around or after migration, suggesting that having a mother who later decides or is pushed to migrate, regardless of motivation, puts children at significantly increased risk of spending at least some of childhood living separately from mothers. Research

indicates that experiences of maternal absence may significantly shape children's wellbeing and outcomes in a variety of domains (Hedges et al. 2019; Gaydosh 2017; Chuong & Operario 2012), suggesting that establishing prevalence of maternal absence due to migration may increase understanding of the unique impact of maternal migration on the lives of their children. Children fostered due to maternal migration may be negatively affected for many of the reasons other children living without mothers experience poor outcomes, but maternal migration may be linked with voluntary fostering, which tends to be associated with better outcomes, and may increase children's receipt of remittances and parental support, even from a distance (Hedges et al. 2019; Lu & Treiman 2011; Castle 1996). The intersections between when mothers migrate relative to a child's birth and migrant stream, examined in the fourth hypothesis, further emphasizes the combined role of timing and stream between origin and destination, highlighting how children born before, particularly those born to rural-urban migrant mothers, experience greater likelihood of living apart from mothers in childhood and early adolescence.

While the fifth hypothesis tested the relationship between fostering and motivation for migration only for a sub-sample of countries, the findings suggest that certain drivers of migration, namely economic, are strongly associated with child fostering arrangements. This is in line with research suggesting that economic migrants may have difficulty caring for children while seeking employment or working in formal or informal sector jobs (Blanc & Lloyd 1994; Nelson 1987). However, the results also suggest higher probability of fostering for children of mothers who migrated for marriage formation. Initially this may seem counterintuitive, in that it might be expected that familial migration would be linked with co-residence between mothers and children; however, it is likely that some proportion of these mothers are migrating for remarriage or to form a union after having had a child before marriage. Previous research

suggests that family transitions such as remarriage are associated with fostering, as new spouses may not wish to care for children from a previous union, or maternal kin may prefer to keep such children to ensure their well-being (Cotton et al. 2022; Grant & Yeatman 2014). Even those whose mothers migrate for other family reasons or for other reasons more generally (including seeking better services and housing) are more likely to spend some period of childhood separated from their mothers. Further data on migration motivations may help further disentangle these relationships.

As with all research, there are several limitations to this study. Foremost, the DHS collects little contextual information about maternal migration experience beyond status, general timing, and stream. No details are collected in most DHS about motivations for migration (except those five countries included in these analyses), nor whether mothers migrated alone or with others (or to join other kin). In addition, due to a pause on collection of migration-related data in the early 2010s, a number of countries with recent DHS cannot be included in analyses, which may have provided additional strength to the findings. As the DHS collects only information on the most recent migration, we cannot distinguish between mothers who migrate only once or more frequently, though circular and seasonal migration are common in many African countries (Beguy et al. 2010; Potts 2010). An additional limitation concerns the conceptualization of child fostering. In this paper, I conceptualize children as fostered when they do not live with their biological mothers. Presently, the DHS does not collect any data on who these children reside with, meaning that there is no way to determine who a child lives with and that some children categorized as fostered may live with biological fathers. These children's living arrangements may be influenced by their mothers' migration experiences, but I caution that these arrangements might differ from other forms of child non-residence. Finally, the DHS

collects no supplemental data that may aid in understanding the timing of fostering relative to migration. We cannot assume all children born before mothers migrated were "left behind" if they are currently fostered, as they may have migrated with mothers and later moved elsewhere, or they may have migrated themselves to a new household when mothers migrated. It should be noted that though this study proposes that maternal migration might result in fostering, the inverse is equally possible: mothers who have access to fostering, among other resources, might find themselves better able to migrate. A more detailed migration history and explicit data on timing and duration of fostering arrangements would allow researchers to untangle the relationship between initiation of migration versus initiation of fostering.

The findings of this study suggest a number of future directions that researchers of child fostering and women's migration might interrogate. While this study provides evidence for an important role of maternal migration experience in child fostering arrangements, the limited analyses possible with existing data leave unanswered questions about how mothers make decisions about children's living arrangements with regard to their migration experiences. For example, qualitative research with migrant mothers might illuminate the nuances of mothers' decision-making, helping to unpack how mothers decide to migrate with children, leave them behind with kin or other caregivers, or send them back after migrating together. Additional contextual information about the timing and nature of migration and fostering arrangements, whether from qualitative or quantitative studies, will allow researchers to disentangle the relationship between maternal migration and children's living arrangements. This study points to potential policy implications, as countries may consider the resources available for mothers migrating into new destinations and how women might be supported in migrating and living with their children, should they choose to.

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[i] The restriction to de jure mothers results from data collection procedures. Variables used to construct measures of migrant status (duration of residence, type of location of previous residence) are not collected for the majority of non-de jure residents. In addition, all household-level variables included in models are measures of the household in which non-de jure mothers are not resident;we lack all household-level information for mothers who are visitors.

[ii] Given that the impact of migration in early life may differ from migration as adolescents or adults, I run alternate models as a sensitivity check, where mothers who migrated before age 13 are categorized as "non-migrants." This recategorizes migrant status of 24,970 children over all 24 countries, roughly 3.1% of the pooled sample. These models show substantively similar findings to models using the above-described measure of migrant status (results available upon request).

[iii] The proportion of children whose mothers were international migrants ranges from 0.03% in Madagascar to 13.6% of Gambia. Models including international migrants show substantively similar results as the included models focused solely on internal migration (available upon request).

[iv] The DHS creates a wealth index using principal component analysis of a variety of household assets. No data on income is collected, thus I use wealth quintile as a proxy for mothers' economic status at time of survey. It is important to note that this is present household wealth, and maternal characteristics at time of survey such as marital status, employment status, relationship to household head, and household wealth, may not correspond to mothers' characteristics at time of migration or when initially fostering, and may have changed as a result of migration

Disclosure statement: The author reports there are no competing interests to declare.

Data availability statement: Data are publicly available from the Demographic and Health Surveys program (https://dhsprogram.com/) upon registration.