Child fostering practice and inter-generational support inside Ghanaian households*

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Abstract

Child fostering within the household networks is a common practice in Ghana, which can have a significant impact on children's living conditions. We provide evidence that the relative well-being of foster Ghanaian children depends mainly on the counterfactual used, i.e., host siblings, non-foster siblings, other children with co-resident parents. Even if foster children have a lower probability of being enrolled at school and working more than their host siblings, this is not the case for comparing the former to their non-foster siblings. This paper also documents the heterogeneity of children's well-being outcomes with respect to their primary caregiver. The negative impact of fostering on education and child work is driven by caregivers who are not the grandparents. By analyzing the intra-household allocation of expenses, our results suggest that grandparenting is more favorable to foster children than other fostering arrangements. Being cared for by grandparents does not worsen children's living conditions, which can be explained in part by inter-household money transfers.

Keywords: child fostering; fostering arrangement; extended family; caregiver; intra-household allocation.

JEL classification codes: D13; D64; J13; O15.

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1 Introduction

Child fostering consists of temporarily sending children to live in a household other than their parents. This institution is an integral part of interhousehold exchanges in contexts where households must rely on the network and family ties for support (Eloundou-Enyegue and Shapiro, 2004). The impact of fostering on children's health, education, and work has received increasing attention. This interest is mainly related to the fact that child fostering has been perceived as a form of exploitation driven by needs for domestic work (Ainsworth, 1996; Black and Blagbrough, 1999). Foster children also include those left behind by migrant parents; acknowledging their situation help understand the impact of migration on the development of the origin country (Bilsborrow, 2016). Other reasons such as risk-sharing, parental death, divorce, and education have been consistently cited in the literature. In Western Africa, it is also a means of strengthening community ties and transmitting traditional norms and values -as mentioned by Grysole (2019), concerning transnational families. Ghana has a long-standing practice of child fostering and significant emigration flows. According to Demographic and Health Survey (DHS) data, in 2014, child fostering affected about 15 percent of non-orphan children aged between 0 and 14 years old, which is a relatively high prevalence of child fostering for the region.[1]

The literature on the impacts of foster care provides mixed results and does not conclude that child fostering has a systematically negative effect on child well-being (for a review, see Ariyo et al., 2019). While parental absence could be detrimental for the development of children (Engle et al., 1996; Case et al., 2004), other non-parental caregivers are sometimes identified as the most appropriate for the transition from childhood to adulthood (Alber, 2003). Can the integration of a host household benefit the well-being of the children in care? If parents considered that another caregiver is better able to care for their child, it could improve his well-being to be fostered out. Within the network, children are mainly housed in the family circle. The strength of the relationship between children and their caregivers may affect their interests in children's development. Thus, certain fostering arrangements may be more conducive to investment in children's education or, on the contrary, to their work (domestic or paid). Are there differences in intra-household resource allocation toward foster children depending on their caregivers? How does the relationship between children and their caregivers affect child well-being outcomes?

[1] In 2010, Marazyan (2015) found on average 10 percent of foster children aged 0-14 using the DHS data from 11 Western African countries.

Child fostering implies temporarily transferring the parental rights to a caregiver; in that sense, it differs from adoption. On the boundary between these two notions, the specific case of orphans and their caregivers in the HIV epidemic zones has received much attention (Ainsworth and Filmer, 2006; Beegle et al., 2006, 2010; Evans and Miguel, 2007; Grant and Yeatman, 2012). According to Hamilton's rule (Hamilton, 1964a,b), i.e., genetic proximity increases interest in children's development, applied to households involved in child fostering, foster children are disadvantaged relative to those living with their parents. Nevertheless, comparisons between children in foster care and their siblings who remained with their parents indicate that relocation can positively affect human capital investment (Akresh, 2004). For example, rehousing a child in response to a negative income shock (Akresh, 2005) suggests that it could be a strategy for sharing resources within the network supporting children's development. In this context, fostering can improve the well-being of children compared to staying with their parents by moving closer to a school, for instance (Zimmerman, 2003). Most studies finding a detrimental effect of fostering on children's well-being concentrate on the differences between foster and non-foster children. The results in the literature depend mainly on the counterfactual used to estimate the impact of child fostering on children's outcomes. To the best of our knowledge, differences in the well-being of foster children according to the benchmark used have been rarely tested in previous studies, except Akresh (2004, 2009) and Beck et al. (2015) comparing foster children to their non-foster siblings and their host siblings thanks to specific survey designs. Data from large-scale surveys generally do not allow such clean identification of foster-in and foster-out households. This paper suggests a proxy of non-foster siblings, i.e., children with foster siblings who stay with their parents. Thus, our approach allows for multiple comparisons enriching the analyses of child fostering impacts.

The characteristics of the host household and the caregiver are critical determinants of the fostering outcomes (Fafchamps and Wahba, 2006; Lloyd and Blanc, 1996; Serra, 2009). The choice of the host household is closely related to the reason for child fostering. In Ghana, for the Akan ethnic groups with matrilineal descent rules, children might be placed with their uncles for transfer and inheritance purposes (La Ferrara, 2007). In the case of parental migration, Ghanaian grandmothers seem to be the preferred child caregiver (Poeze et al., 2017). Part of the literature has established that it exists heterogeneous effects of child fostering according to the degree of relationship between the foster child and her caregiver (Beck et al., 2015; Case et al., 2004; Lachaud et al., 2016; Zimmerman, 2003), suggesting that family proximity with the caregiver is a factor improving children's outcomes.

The host household composition can also influence the treatment of foster children, such as the presence of a couple (Darko and Carmichael, 2020). Moreover, the position of the households inside the kinship network affects its probability of fostering children (Marazyan, 2015). Apart from genetics, the literature does not provide an economical mechanism to explain why close family ties (grandparents and siblings) should be more appropriate to rear the foster children. At first glance, grandparents' households may have a more advantageous economic situation, as they are more likely not to have to support their children, own home and capital, and receive a pension (Duflo, 2003). Nevertheless, given the budgetary constraints older adults face in Sub-Saharan Africa, they could have limited resources to allocate to children. Grandparents may also be less able to generate income, more likely to suffer from poverty (Kakwani and Subbarao, 2007), be ill or disabled, and need care. According to their caregivers, this paper contributes to the literature by investigating the difference in child expenditure dedicated to foster children. Our approach suggests that grandparents are more likely to allocate resources to foster children than other caregivers. We describe the heterogeneity of fostering arrangements and their implications for the well-being outcomes of foster children. The results are consistent with the literature emphasizing the positive impact of the grandparents' presence to comply with parental absence (Alber, 2004; Bertoli et al., 2021; Dreby, 2010).

Our approach consists in evaluating the different impacts of caregivers on the relative well-being of foster children. We mainly use data from the sixth wave of the Ghana Living Standard Survey conducted in 2012-2013 (GLSS6) by the Ghana Statistical Services. The sample of interest includes 13,893 children aged 6 to 14. Available information enables us to identify, for each individual, the presence of parents within the same household. Although, the interviewers do not ask whether parents have foster children outside the household. We propose a way to identify parents likely to have children cared for by other households, using the fertility module dedicated to women aged between 12 and 49 years old. It enables us to distinguish between foster children and (i)those who live with their parents in households hosting foster children, called host siblings, (ii)those who remain in households that have fostered out children, called non-foster siblings, and (iii)those in households that do not practice fostering (others). Family ties between the foster children and their caregivers are identified using the relationship to the head. We assume that the host household's head (and the head's spouse) is the primary caregiver of foster children. We analize intra-household resource allocation to observe if a particular caregiver is more likely to favor foster children than others. Outlay Equivalent Ratios (OER) are computed following the procedure developed by Deaton (1989) based on Rothbarth's frame-

work. From the aggregate household expenditures, we determine how much caregivers deprive themselves of expenses in adult goods (such as clothing, personal care, alcohol, tobacco, and miscellaneous goods) when a child enters the household (measured in outlay equivalent). In other words, by reducing expenditures on adult goods, we can approximate the resources adults are willing to allocate to children. Therefore, this approach can assess the inequality experienced by foster children compared to children with co-resident parents according to different fostering arrangements. This method has been mainly used to examine gender differences (see, for instance, Gibson, 1997; Haddad and Reardon, 1993; Zimmermann, 2012). We contribute to studies implementing this method to compare foster children and children living with their parents (Arndt et al., 2006). In addition to this analysis, we also look at the reported education expenditures for each child (Datta and Kingdon, 2019) to compare whether the direct and indirect methods to measure child expenditure go in the same direction. According to their caregivers and household structure, we put forward the inequalities in consumption faced by foster children. These results allow us to understand better the mechanisms that explain why grandparents are typical caregivers and how fostering can benefit children. Beyond the expenditure structure, grandparents are also likely to receive money transfers from the foster child's parents, encouraging the allocation of household resources to foster children. Our results provide evidence that inter-households transfers are correlated with the practice of child fostering, emphasizing the role of the network in the intra-household allocation of resources (Cox and Fafchamps, 2007).

We analyze the characteristics of primary caregivers in Ghana. Among the children who live with at least one parent, only 6 percent do not co-reside with their mother. The majority of the foster children are hosted in a household with a member who could be a foster mother[2]: 51.9 percent live with their grandmother, and more than 46.8 percent live in a female-headed household. Controlling exhaustively for the household composition, i.e., the number of individuals per gender and age group, the foster children appear to be disadvantaged in terms of schooling and work on average 1.3 hours more than their host siblings. However, this difference is no longer significant compared to children with a mother fostering out. Also, foster children spend more time on household chores than their non-foster siblings. Nevertheless, these differences are driven entirely by children fostered in households other than their grandparents. Globally, host households report fewer expenses related to the education of foster children. This article provides evidence

[2]The terms foster parents and foster mother are used by Engle et al. (1996) to describe the individuals to whom most parental rights are transferred.

that, despite having fewer resources, grandparents devote more expenses to foster children than other caregivers. Grandparents are also less likely to have co-resident biological children, and thus foster children are less likely to face discrimination or competition for resources. More generally, our findings document the family structures in Ghana and how children's living arrangements can mediate the transmission of human capital, as Alesina et al. (2021) have called for.

The remainder of the paper is structured as follows: Section 2 presents the different samples of children according to their fostering arrangement and the primary caregivers. We provide descriptive statistics at the individual and household levels. Section 3 outlines the differences in expenses for children depending on their caregiver. First, we directly measure child costs through individual school expenses over the year. Secondly, we study the intra-household allocation of resources by fostering arrangement. Our results highlight the heterogeneity within the group of foster children depending on the caregiver considered. Section 4 presents the difference in objective well-being outcomes between foster and non-foster children and among foster children depending on their caregivers. Finally, Section 5 discusses the results and draws the main conclusions.

2 Fostering arrangements in Ghana

We describe the primary data source used to produce estimations presented in this paper, the sixth round of the Ghana Living Standard Survey (GLSS6). Our approach consists of drawing samples of children according to the fostering arrangement of their households. To prevent potential measurement errors due to the definition of foster children, we provide additional statistics using data from 2014 Ghanaian Demographic and Health Survey (DHS).

2.1 Data sources

The Ghana Statistical Services have repeatedly conducted the Ghana Living Standard Survey since 1987. The data collection for the sixth round lasted from October 2012 to October 2013. This survey round collects detailed information on individuals in a national representative sample of 16,772 households. Interviewers ask each individual to identify biological mother and father among the household members. We use these declarations to determine parent-child co-residence. However, some individuals misreport information about their co-resident parents. To target these misreporting, we cross-referenced child declarations with (i)sex of the parents, (ii)age dif-

ference between child and parents[3], (iii)crossed relationships to the head of the child and her parents. For 90.7 percent of the surveyed households, we dispose of reliable information about parent-child co-residence. Households for which it is ambiguous whether a member co-resides with their father or mother are removed. Our approach evaluates if foster children are worse-off than non-foster children. Further analyses produced in this paper need a careful measure of educational expenses per child and household expenditures. Households with annual expenditures per capita at the 1 percent extremities of the distribution are removed from the sample.

We focus on children aged 6 to 14 years old, for whom the school is compulsory and should be dependent on adults, not working and less likely to be the main provider of household chores.[4] 2,532 individuals are considered foster children, as they do not co-reside with any parents. They represent 19.3 percent of children aged 6-14. Household members of the GLSS6 can declare "foster/adopted children" as their relationship to the head. With this answer, we cannot distinguish between an individual living with adoptive parents and a child temporarily fostered. However, only 6.8 percent of foster children are included in this category, supposedly because they can describe their relationship to the head through other categories. In descending order, foster children are grandchildren, other relatives, non-relatives, or house-helps. Furthermore, GLSS6 collects no information on parental survivorship, constraining us from considering orphans as foster children. To assess the importance of orphanages among foster children, we use the 2014 Ghanaian DHS data. We find a similar share of foster children changing data sources (18.3 percent), which confirm the high incidence of child fostering. Among those children, 5.3 percent are double orphans. Beyond orphanages, children could also be fostered in response to the death of one parent. Nevertheless, since one parent can still be the primary caregiver,[5] we consider these situations purposive child fostering.[6] Around 80 percent of foster children have both parents alive.[7]

Our analyses include comparisons between foster children and their bio-

[3]Removing the extreme values, mothers gave birth to children between 17 and 43 years old, and fathers have babies between their 18 and their 58 birthdays.

[4]From 15 years old, individuals could be the head of their household.

[5]According to the results presented by Ainsworth and Filmer (2006) about child fostering in different regions of the world, the large majority of single-parent orphans still live with the surviving parent in Sub-Saharan Africa.

[6]Serra (2009) uses these terms to oppose crisis fostering linked to a situation of urgencies such as the death of both parents to purposive or voluntary child fostering resulting from an agreement between parents and the host household

[7]Hampshire et al. (2015) reported that nearly two-thirds of children in kinship care in Ghana have both parents alive, using data from Child Mobility Survey.

logical non-foster siblings. Most large-scale surveys prevent researchers from identifying the latter, as they do not ask questions about non-co-resident children of the household members. Exceptions such as Akresh (2005) and Beck et al. (2015) use specific surveys designs for interviewing foster-in and foster-out households. We propose an approach using GLSS6 data based on mothers' fertility declarations to identify households likely to have voluntarily fostered out a child. Notice that 90 percent of non-foster children co-reside with a mother who answered the fertility module.[8] Combining declarations of children about parent-child co-residence and women's declarations about alive children, we identify women who are not co-residing with all of their children. As the likelihood of parent-child co-residence decreases with the age of the children (and their mother), we focus on women who are not likely to have biological children aged 15 and over. We rely on the average women's age at first child to restrict the mother's age range.[9] On average, women have their first child at 23 years old. Thus, we identify mothers fostering out among women aged between 23 (17+6) and 37 (23+14) years old. 36.6 percent of them have a non-co-resident child likely to be fostered out of the household. It represents 2,158 girls and 1,835 boys likely to have been fostered out of their parental household. On average, mothers fostering out have only one non-co-resident child. It also means that 11.99 percent of children aged 6-14 living with their mother have a foster sibling. Even if the data do not allow to relate foster children to their biological non-foster siblings, this proxy allows observing the children in foster-out households. This method could be replicated using large-scale survey data with information on the number of children alive per woman, but notice that it is subject to various types of measurement error. In particular, we could underestimate the number of children with foster-out siblings since women over 37 could foster out children under 15, and our approach does not include them. Indeed, 59.31 percent of children in the same household as all their siblings and their mother aged over 37 are younger than 15 years old (see Appendix, Figure A.1). Even if it is a significant concern, we had to arbitrate to find the mother's age that avoids selecting children over 14. On the contrary, women aged 33-37 could have children aged 15-20 who are already independent. Only 12.48 percent of children, with a mother aged 33-37 who is not fostering out, are aged 15 and over. Finally, notice that non-co-residents children could also be migrants who have moved abroad with their father. These remarks could explain why we find more children fostered-out than children fostered-in in Ghana.

[8]The fertility module contains questions for women aged 12-49. 10 percent of children have a mother older than 49 years or co-reside only with their father.

[9]We estimate the mean age of women who have a single alive child, who co-resides with them, and who is aged 0.

2.2 Children's primary caregiver

Using data from the GLSS6 we draw four mutually exclusive groups of children according to their fostering arrangement. Children involved in fostering practice could be (i)foster children, (ii)host siblings, who are living with their parent(s) in blended households, i.e., with foster children, and (iii) non-foster siblings, who are living with their mother who has fostered out at least one child. We removed from the sample households having a double fostering arrangement, i.e., host households with a mother who has fostered out.[10] The last group, (iv) called others, includes children whose household is not practicing child fostering. Their household does not host foster children, and they have at least a co-resident parent who is not a mother fostering out a sibling.[11]

Table 1 presents descriptive statistics of children and their households according to their fostering arrangements. For children with co-resident parents (host siblings, non-foster siblings, and others), we assume their primary caregiver is a parent. We define the primary caregiver as the host household's head for foster children. Whereas children not involved in fostering are equally distributed among rural and urban areas, 65.1 percent of non-foster siblings are rural. Most foster-out households send children from the rural areas; on average foster children have more chances to live in urban areas or the Capital region than their non-foster siblings. 55.7 percent of foster children are girls, and they are aged 10 years old on average, which is a little bit older than children with co-resident parents. In 48.3 percent of cases, foster children are hosted in households headed by a couple; when not, they are primarily hosted in a single female-headed household. In 95.1 percent of cases, children are hosted in households with a woman who could be a foster mother. This pattern reflects that in Ghana, women are primary caregivers of children; turning to children with a coresident parent, only 6.7 to 8.3 percent of them live only with their father. In particular, for foster children, the grandmother seems to be the preferred caregiver as 51.9 percent of them reside in her household. While children with co-resident parents are unlikely to be members of their grandparents' household (between 90.7 and 95.5 percent are head's child). They may be co-residing with their grandparent, but the latter is not the main provider for the household[12] neither their primary

[10]The double fostering arrangement concerns 213 children aged 6-14, who have been removed from the sample.

[11]The mother is aged under 38 and lives with all her alive children, or the mother is aged between 38 and 57 years old, or the mother is absent, and the child only has a co-resident father.

[12]The interviewer manual of the GLSS6, specifies that the household's head is responsible for the upkeep and maintenance of the household. The household members themselves

Table 1: Descriptive statistics of children

	Foster children	Host siblings	Non-foster siblings	Others
Rural	0.471	0.475	0.651	0.510
	(0.010)	(0.017)	(0.013)	(0.005)
Greater Accra region	0.149	0.156	0.081	0.143
	(0.007)	(0.012)	(0.007)	(0.004)
Age in years	10.250	10.249	9.176	9.840
	(0.050)	(0.086)	(0.065)	(0.027)
Girl	0.557	0.472	0.456	0.479
	(0.010)	(0.017)	(0.013)	(0.005)
Co-resident mother and father	0.000	0.636	0.768	0.695
	(0.000)	(0.016)	(0.011)	(0.005)
Co-resident mother only	0.000	0.281	0.232	0.237
	(0.000)	(0.015)	(0.011)	(0.004)
Separated or divorced mother		0.069	0.067	0.076
		(0.008)	(0.007)	(0.003)
Co-resident stepfather		0.028	0.041	0.017
		(0.006)	(0.005)	(0.001)
Co-resident father only	0.000	0.083	0.000	0.067
	(0.000)	(0.009)	(0.000)	(0.003)
Parent is head		0.907	0.924	0.955
		(0.010)	(0.007)	(0.002)
Couple of grandparent is head	0.208	0.016	0.013	0.009
	(0.008)	(0.004)	(0.003)	(0.001)
Grandmother is head (without husband)	0.311	0.036	0.017	0.010
	(0.009)	(0.006)	(0.003)	(0.001)
Grandfather is head (without wife)	0.015	0.005	0.001	0.003
	(0.002)	(0.002)	(0.001)	(0.001)
Head couple, not parent not grandparent	0.275	0.030	0.039	0.016
	(0.009)	(0.006)	(0.005)	(0.001)
Female head without spouse, not parent not grandparent	0.157	0.005	0.003	0.002
	(0.007)	(0.002)	(0.001)	(0.001)
Male head without spouse, not parent not grandparent	0.034	0.001	0.002	0.004
	(0.004)	(0.001)	(0.001)	(0.001)
Observations	2,532	895	1,414	9,052

Notes: averages and standard errors (in parentheses) have been computed using individual sampling weights; the sample includes children aged 6-14.
Source: Author's elaboration on GLSS6.

caregiver. Notice that we cannot distinguish between maternal and paternal grandparents without the presence of parents, but this distinction would have been useful, especially in Ghana, where the dominant ethnic group, Akan, follows matrilineal rules. Even if most children are purposely fostered, the inclusion of orphans in our sample could influence the analysis of fostering arrangements.[13] DHS data reveal that orphans are less likely to be hosted in the household of their grandparents (36 percent) compared to other foster children (53 percent). Case et al. (2004) also found that orphans are likely to be hosted by distant relatives and have lower educational outcomes than their host siblings.[14] As we cannot distinguish between orphans and other foster children with GLSS6 data, we can underestimate co-residence with the grandparent and the educational outcomes of foster children.

It is difficult to approximate the reason for child fostering with GLSS6 data, such as parental migration or divorce. First, no question about parent location is asked to foster children, and the parents are unlikely to be enumerated as migrants by the host households.[15] Secondly, as women are the preferred caregivers, mothers' death could lead to child fostering,[16] but we do not observe non-foster siblings with dead mothers as our identification is based on mother-child co-residence. Thirdly, parents' divorce and maternal remarriage are significant drivers of child fostering (Grant and Yeatman, 2014). Table 1 indicates that 10.8 percent of non-foster siblings have a separated, divorced, or remarried mother. We identify remarriage through the presence of a stepfather, crossing the children's declarations about co-resident father and mother's declaration about a co-resident spouse. This proxy depends on the fact that children from the previous union stay with their mother even when she lives with the new spouse. If remarriage is correlated with child fostering and the woman fosters out all her children from

should identify him/her; most often, they declare the main provider.

[13] In countries with a high prevalence of orphanages, Beegle et al. (2010) emphasize the role of grandparents in taking care of orphans.

[14] Several authors put forward worse health and education outcomes for orphans in Sub-Saharan Africa, mainly maternal ones (Beegle et al., 2006; Case and Ardington, 2006; Evans and Miguel, 2007). Concerning Ghana, Ainsworth and Filmer (2006) found that in 1993,1998, and 2003, only paternal orphans had significantly lower school enrollment than non-orphans.

[15] Question 1 of Section 11.E2 from the GLSS6 questionnaire: "Is/Are there any household member(s) who is/are currently living outside your household". The notion of "household member" may not include migrant parents if they were not a member of the host household at the time of migration or if they will not integrate the host household when they come back (Bertoli et al., 2021).

[16] Evans (2004) found that children are significantly more likely to be fostered in other households after a maternal death than following paternal death.

the previous union, then we do not identify the presence of a stepfather. The circumstances of child fostering can be correlated to the choice of the host household and could influence the well-being of foster children (Marazyan, 2015); unfortunately, our analysis cannot take them into account.

2.3 Household wealth

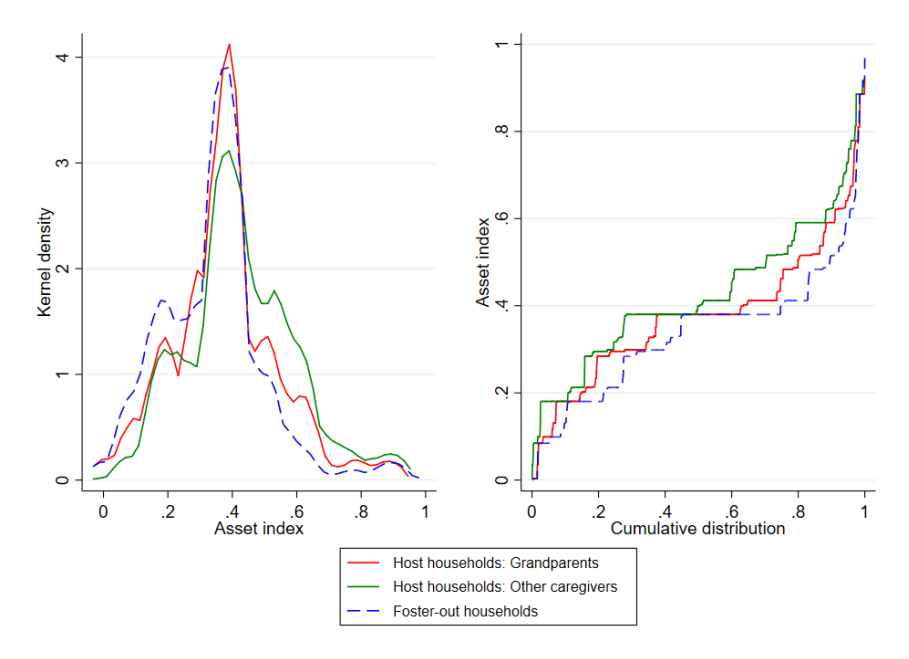
Children's needs could also drive child fostering, relocating them closer to school (Zimmerman, 2003) or in wealthier households (Coe, 2012) and potentially to respond to a negative income shock on the parental household (Akresh, 2005). Indeed, child well-being also depends on the ability of the parent or other caregiver to cover child expenditure. If parents foster their children to provide them with more resources, we should observe that host households have better living conditions than foster-out households. We proxy household wealth using annual nominal household expenditure per capita.[17] Most foster children are hosted in the household of their grandparents, but older people might be less able to earn money, more likely to be ill, and need care. From another point of view, grandparents could have more stable living conditions than other caregivers if they have already acquired durable goods and capital over their life. To proxy children living conditions, we use information about housing characteristics and ownership of durable goods (Filmer and Pritchett, 2001). We processed this information with a principal component analysis to determine a household wealth classification based on assets. An asset index represents this classification from 0 to 1 (the richest).

Figure 1 plots the distribution of the asset index for (i)host households headed by a foster child's grandparent, (ii)host households not headed by a foster child's grandparent, and (iii)foster-out households (with non-foster siblings). The cumulative density of the asset index put forward a stochastic dominance of household wealth of host households not headed by grandparents. Foster-out households are less wealthy than the other ones. Nevertheless, children fostered in grandparent's households benefit from a less favorable financial situation than other foster children. Table 2 leads to the same wealth classification between fostering arrangements. Children cared for by other caregivers join households with 26 percent more expenditure per capita than their parent's household. Grandparent host households are better off than foster-out households, but the difference is much smaller. The wealth gap between grandparents and other caregivers is two times larger than the

[17] We use the total nominal household expenditures over the last 12 months, excluding rent, computed by the Ghana Statistical Service following the methodology presented in p.71 of the manual to establish poverty profiles from GLSS6 (2014).

one between grandparents and the households of parents who foster-out. Grandparents are not the non-parental caregivers having more resources to allocate to foster children.

Figure 1: Asset index distribution according to household fostering arrangement



Notes: household sampling weights have been used to produce estimations; sample includes households with children aged 6-14 who are fostered or with a co-resident mother fostering out.
Source: Author's elaboration on GLSS6.

Table 2 presents descriptive statistics of the net amount of remittances received over the last year. We include internal transfers in Ghana and transfers from abroad to account for parental migration. 4.2 percent of the household received money from abroad over the 12 months before the survey. Households with grandparents fostering are undoubtedly net recipients of transfers, whereas foster-out households are net senders. The grandparents may receive money from the parents of the foster children, i.e., their own children. Indeed, 39.1 percent of grandparent fostering households received money from a head child (compared to 4.1 percent for other fostering arrangements). This transfer pattern associated with grandparent fostering has also been observed by Marazyan (2011) for the case of foster Indonesian

Table 2: Household wealth according to fostering arrangement

	Host households: Grandparents	Other caregivers	Foster-out households	(1)-(2)	(1)-(3)
			All areas		
Asset index	0.372	0.430	0.344	-0.058***	0.028***
	(0.005)	(0.006)	(0.006)	(0.008)	(0.008)
Household expenditure per capita	1,794.059	2,134.786	1,691.492	-340.728***	102.566*
	(39.044)	(53.299)	(42.625)	(65.768)	(57.731)
Net amount of remittances received	310.438	-16.233	-76.536	326.670***	386.974***
	(64.122)	(59.141)	(26.568)	(87.338)	(72.141)
Observations	880	829	811	1,709	1,691
			Rural areas		
Asset index	0.388	0.409	0.358	-0.021*	0.030***
	(0.007)	(0.009)	(0.007)	(0.011)	(0.010)
Household expenditure per capita	1,497.196	1,575.114	1,353.605	-77.918	143.591**
	(41.152)	(51.002)	(37.981)	(65.103)	(55.898)
Net amount of remittances received	66.320	-185.799	-91.717	252.119***	158.037***
	(28.208)	(98.296)	(16.500)	(91.918)	(32.249)
Observations	536	431	582	967	1,118
			Urban areas		
Asset index	0.487	0.533	0.467	-0.046***	0.020
	(0.009)	(0.008)	(0.011)	(0.012)	(0.014)
Household expenditure per capita	2,133.613	2,481.937	2,247.343	-348.324***	-113.730
	(68.731)	(84.019)	(94.060)	(112.429)	(113.429)
Net amount of remittances received	589.661	88.944	-51.562	500.717***	641.223***
	(144.025)	(72.495)	(74.077)	(153.081)	(183.464)
Observations	344	398	229	742	573

Notes: average and standard errors (in parentheses) have been computed using household sampling weights; sample includes households with children aged 6-14 who are fostered or with a co-resident mother fostering out.
Source: Author's elaboration on GLSS6.

children. However, we do not know if the head child is a parent of foster children, but it could be an uncle, especially if cousins are fostered at the grandparents' place.[18] Receiving transfers from the parents can encourage the caregivers to allocate resources to the foster children.

3 Expenses for children

We analyze the commitment of caregivers to allocate resources to foster children. If host households can better support the child cost than parents, we should observe higher expenses dedicated to foster children than to their non-foster siblings. Nevertheless, if the host caregiver also has biological children, foster children could be discriminated against by their host siblings. We adopt two different approaches to measure expenses for children —the GLSS6 records expenditures at the household and individual levels. We directly measure child investment through educational expenditure for each child. Then, we estimate the child cost from household expenditures on adult goods, following the procedure to compute Outlay Equivalent Ratio.

[18]For other host households, 27.7 percent received money from siblings, other relatives, or non-relatives who could be foster children's biological parents.

3.1 Direct measure

Most studies that attempt to quantify the effect of child fostering have found a negative impact using co-residence with parents as a baseline. Even if foster siblings are not treated as equal to biological children, they may be better off than their non-foster siblings (Akresh, 2004, 2009; Beck et al., 2015). Investment in child education also depends on caregivers' altruism in allocating resources to foster children. We do not know about the intention of the host household when they welcome a foster child. Several studies pointed out that close caregivers may benefit more to foster children than distant relatives or non-relatives (Alber, 2004; Case et al., 2004; Fafchamps and Wahba, 2006). Grandparents (as siblings) are the closest family members after the parents and may be more likely to invest in child education than other caregivers. To measure investment in child education, we rely on individual school expenditures declared for each child attending school. Global household expenditures on education for blended households, i.e., foster children and host siblings, hide the distribution of resources among children's groups. In contrast, individual-level data are better able to put forward discrimination between children's groups that wash out at the household level (Aslam and Kingdon, 2008; Kingdon, 2005; Zimmermann, 2012). The individual school expenses declared during GLSS6, include a large set of expenditure items for each child.[19] The caregivers decide if they want to spend money on child education (the extensive margins), then conditional on spending money, they decide how much they dedicate (the intensive margin). School expenses are only registered for the sub-sample of individuals attending school; we analyze differences at the intensive margin in expenditure on children according to their caregiver. To normalize the distribution of school expenses, we apply a log transformation.

$$\begin{aligned} y_c =& \alpha_1 \mathrm{F}_c + \alpha_2 \mathrm{H}_c + \alpha_3 \mathrm{S}_c + \beta \mathrm{Z}_c + d_c^{\text{age}} + d_c^{\text{sex}} \\ &+ d_c^{\text{age}} * d_c^{\text{sex}} + d_c^{\text{rural}} + d_c^{\text{region}} + \epsilon_c, \end{aligned} \tag{1}$$

For each child c, we regress school expenses on interest dummies variables indicating the child's group and a large set of control, using OLS estimators. 12,309 children aged 6-14, attending school, are divided into four groups following the procedure exposed in Section 2: foster children (F),

[19] School expenses over the last 12 months include school and registration fees, contribution to parent/teacher associations, uniforms, and sports clothes, books and school supplies, transportation to and from school, food board and lodging, expenses on extra classes, in-kind expenses, mixed category.

host siblings (H), non-foster siblings (S) and others. Afterward, we distinguish two groups of foster children according to their relationship with their primary caregiver: foster grandchildren and foster not grandchildren. The fixed effects and the control variables are progressively added to determine the impact of the child group on educational expenditure. Our interpretation of the results, presented in Table 3, concentrates on the differences in school expenses of foster children relative (i)to their host siblings ($\alpha_1 - \alpha_2$) and (ii)to their non-foster-siblings ($\alpha_1 - \alpha_3$). Given the spatial distribution of the foster children and their non-foster siblings presented in Sub-section 2.2, child fostering may be correlated with child migration from rural to urban areas. Without controlling for child location, foster children significantly benefit from less expenditure than their host siblings. Nevertheless, the coefficient associated with the difference in school expenses relative to their non-foster siblings is positive. If rural children displace to the urban area, where the concentration of schools is higher, it could automatically increase their school participation and decrease some costs (transportation, boarding school, cafeteria fees). When the differences are estimated among the place of residence, $\alpha_1 - \alpha_3$ turns negative. Child location fixed effects (rural/urban area and region) account for differences in school accessibility. We implement flexible specifications adding multiplicative variables dummies of children's age and sex to avoid the inclusion of gender discrimination. The vector of control variables Z_c includes demographic dummies and dummies for the highest education level among adults members. The last two estimates of Table 3 also controls for the child's education. Controlling for education level and private school enrollment decreases the magnitude of the differences between child groups. These variables are intrinsically linked to school expenses, as expenses increase with education levels (sports activities, book purchases), and private schools are means-tested.

We observe that foster children and their non-foster siblings seem to be disadvantaged with respect to other children. Highly significant lower school expenses are declared for foster children compared to their host siblings. Foster children have around 30 percent less money dedicated to their education than their host siblings. Even distinguishing among foster children cared by their grandparents and the others, the differences are negative, and foster children seem discriminated with every caregiver. Our results do not allow either to conclude that child fostering can increase child expenditures. Indeed, the coefficient associated with the difference between foster children and their non-foster siblings is negative and slightly significant. Notice that only foster children who are not grandchild of the head benefit from fewer school expenses than their non-foster siblings. Grandparent fostering seems to lead to the same child expenditure as staying with the parents. House-

Table 3: Children's school expenses according to their fostering arrangement

	School expenses					
Foster child	-0.229***	-0.244***	-0.258***	-0.220***	-0.120***	
	(0.044)	(0.033)	(0.034)	(0.041)	(0.037)	
Foster grandchild						-0.096*
						(0.050)
Foster not grandchild						-0.137***
						(0.045)
Host sibling	0.114*	0.117***	0.103**	0.154***	0.105***	0.106***
	(0.063)	(0.044)	(0.044)	(0.045)	(0.040)	(0.040)
Non-foster sibling	-0.351***	-0.173***	-0.145***	-0.090**	-0.017	-0.017
	(0.054)	(0.044)	(0.044)	(0.043)	(0.042)	(0.042)
Adjusted R^2	0.008	0.376	0.383	0.419	0.511	0.511
Observations	12,309	12,309	12,309	12,309	12,309	12,309
Differences						
Foster child - Host sibling	-0.343***	-0.361***	-0.361***	-0.374***	-0.225***	
Foster child - Non-foster sibling	0.122*	-0.072	-0.113**	-0.130**	-0.104*	
Foster grandchild - Host sibling						-0.202***
Foster grandchild - Non-foster sibling						-0.080
Foster not grandchild - Host sibling						-0.242***
Foster not grandchild - Non-foster sibling						-0.120**
Foster grandchild - Foster not grandchild						0.040
Dummies:						
Region and rural area	No	Yes	Yes	Yes	Yes	Yes
Age x sex	No	No	Yes	Yes	Yes	Yes
Household controls	No	No	No	Yes	Yes	Yes
Education level and private school	No	No	No	No	Yes	Yes

Notes: estimations have been produced using individual sampling weights; the sample includes children aged 6-14; average outcome for the baseline category (Other) is 5.040; Household dummies include: number of members per sex and per age class [0;5], [6;14], [15;50], [50;98], presence of a couple, highest education level among members aged 15 and over; a log transformation is applied to School expenses; *** p <0.01, ** p <0.05, * p <0.1.
Source: Author's elaboration on GLSS6.

hold wealth and head characteristics are not included in our specifications because of their potential endogeneity with fostering arrangement (see Section 2). However, the results remain similar, accounting for these household characteristics (Appendix, Table A.1).

Nevertheless, the dependent variable may have some measurement errors likely to be endogenous with the fostering arrangement. Almost all children do not directly answer questions on education, i.e., the interviewer asks the primary caregiver if she is available or the main respondent for the household. The respondent to the education section of the GLSS6 questionnaire per surveyed individual is available in the data. For 82.7 percent of foster children, the respondent to the education section is the head or a spouse of the head. Similarly, the respondent is a parent for 87 percent of non-foster children. First of all, caregivers can misreport educational expenditure for various reasons. If the parents are directly paying the fees at the school, for instance, caregivers of foster children cannot know the amount dedicated to this item. Moreover, children could be fostered over the schooling year,

and the host households do not include expenses made by the previous caregivers or parents. When the respondent declares school expenses for foster children, she may not be aware of expenses made by other households for these children. She can also misinterpret the question and consider only her household's cost. Secondly, the measurement of this outcome is subject to fatigue bias. Indeed, the respondent could be tired of declaring every expense item for every child; he can anticipate having to fill in every item if he declares education expenses. Children for whom reports are made after several other individuals would be more affected by fatigue bias (Ambler et al., 2021). We assume that individual information is registered following the order of registration of the household members. On average foster children as their host siblings are the third individual for whom the respondent gives education information. But when the caregiver is not a grandparent, he tends to prioritize his biological children. The individual order by the respondent is significantly negatively correlated with the amount of school expenditure and positively correlated with having no educational expenses at all. Declarations for foster children whose caregivers have children can be more affected by fatigue bias than for other children. Given the challenges related to child school expenses, we complete our analysis using an indirect measure for child expenditure, estimating how much caregivers deprive themselves to allocate resources to children.

3.2 Indirect measure

We refer to household expenditure to assess the resources dedicated to children depending on their fostering arrangement. To do so, we target household expenditure only related to adult consumption, and we compute Outlay Equivalent Ratios (OER) for the four groups of children described above. These ratios highlight an additional child's impact on adult consumption, measured in income effect. Their interpretation aims to conclude how much adults deprive themselves in allocating resources to child-rearing.

3.2.1 Conceptual framework

When a child enters the household, the cost of rearing her requires that adults cut back on some expenditure item or leisure expenses. An additional child leads to the reallocation of resources among household members. As children are dependent on adults, their caregivers decide about child consumption. In other words, caregivers arbitrate between child and adult consumption at a constant budget. From the point of view of adult caregivers, a new child has a negative income effect of their own consumption. The theoretical framework

of Rothbarth (1943) suggests that compensation on income needed to maintain the budget share allocated to adult goods when a child arrives reflects the cost of this child. The higher the compensation is, the more caregiver arbitrate in favor of child consumption. Adult goods include normal goods and services bought by the household that adult members only consume. Deaton et al. (1989) have provided evidence that to validate Rothbarth's framework, the essential condition of demographic separability among goods must hold. The concept of demographic separability refers to goods consumed only by a specific demographic class of household members. An additional child can have a negative income effect on the total consumption of adult goods, but it should not impact the allocation of expenses among adult goods. If the adult good i is only consumed by adults, only them can influence the share of expenses for adult consumption dedicated to i.

Following the methodology implemented by Deaton Deaton (1989) household expenditure on good i, could be written the following way.

$$p_i q_i = f_i(x, N, Z, u) \tag{2}$$

With $p_i q_i$, the expenditure on good i is a function of the household budget (x), the vector N including the number of household members (n_j) per demographic class ($j = 1, .., J$), the vector of household characteristics Z and u the unobservable preferences of the household. The notation r refers to the demographic age class of children. At constant household budget x, the addition of a child r to the household influences the expenses on goods i. However, children essentially impact the purchase of adult goods through an income effect. Thus, it is convenient to express the influence of an additional child in terms of income variation.

$$\pi_i^r = \frac{\partial(p_i q_i)/\partial n_r}{\partial(p_i q_i)/\partial x} \frac{n}{x}, \tag{3}$$

π_i^r is the Outlay Equivalent Ratio (OER) computed from equation 2 representing the effect of the additional child r on consumption of good i, measured in outlay equivalent. For the children's demographic age class we expect π_i^r to be negative. It tells us by how much the household budget x should decrease to produce the same impact on consumption of good i than an additional child r. The more adults reduce their consumption when a new child arrives, the more the ratio will be negative and stronger in magnitude. In other words, π_i^r informed by how much adult deprive themselves for an additional child r. This framework has been mainly used to study discrimination among children. Comparing OER between girls and boys children (Deaton, 1989; Gibson, 1997; Gibson and Rozelle, 2004; Haddad and Reardon, 1993;

Kebede, 2008) and more recently to compare foster and non-foster children (Arndt et al., 2006).

3.2.2 Empirical approach

We implement the OER procedure to compare caregiver efforts to allocate resources to children depending on their group. First, we have targeted adult goods among household expenditures recorded in the GLSS6 data: clothing and footwear for adults, newspapers, hairdressers, barber and hair products, jewelry, alcohol, tobacco and narcotics, and gambling. Expenditures on these goods are expressed annually. We test the demographic separability of each candidate adult good, estimating the following linear model with OLS (Deaton et al., 1989).

$$p_i q_i = \alpha_i + \beta_i x_g + \sum_{j=1}^{J} \gamma_{ij} n_j + d_i Z + \varepsilon_i, \tag{4}$$

x_g is the total expense on adult goods, n_j are the number of household members per sex and age class, Z is a vector of household control variables. If the consumption of good i is directly impacted by adults only, coefficients γ_{ij} for child age-class should not be significant. There is an endogeneity issue since $\sum_{i=1}^{I} p_i q_i = x_g$. Therefore, we also perform two-stage least squares estimations, instrumenting adult goods expenditures by the asset index.[20] Estimations results induce us to validate demographic separability for all our adult goods (Appendix, Table A.2). Aggregated consumption of adult goods represents 5.2 percent of the household budget. This figure is lower than previous findings,[21] but we do not include durable goods such as cars since child fostering might occur over the past year, and these kinds of purchases could be related to child presence. We assume that selected adult goods are normal to define OER. This assumption is confirmed by elasticities drawn for each adult goods expense according to the total nominal expenditures per capita over the last year, excluding rent (Appendix, Table A.3).

Therefore, we can analyze how adult goods expenditures respond to an additional 6-14 child of a specific group. We distinguish between foster grandchildren (G), foster not grandchildren (C), non-foster siblings (S), host siblings (H) and other children not involved in fostering practice (O). We

[20] For instance, other instruments used in this literature are total household expenses, the value of household assets and size of cultivated land, income per capita.

[21] Other studies that implemented OER procedure do find around 10 percent of the total outlay dedicated to adult goods (Arndt et al., 2006; Gibson, 1997; Gibson and Rozelle, 2004; Haddad and Reardon, 1993).

estimate OER, called π, for each group of children. π_i^r quantifies how much adults deprive themselves of adult goods i to buffer the cost of a child of type r. The OER are computed with estimated Engel curve coefficients (work-leisure type), including household characteristics and demographic composition.

$$\frac{p_i q_i}{x} = \alpha_i + \beta_i ln(x/n) + \eta_i ln(n) + \sum_{j=1}^{J} \gamma_{ij} n_j + d_i(Z) + \varepsilon_i, \tag{5}$$

$$\pi_i^r = = \frac{(\eta_i - \beta_i) + \gamma_{ir} - \sum_{j=1}^{J-1} \gamma_{ij}(n_j/n)}{\beta_i + \frac{p_i q_i}{x}}, \tag{6}$$

x is the total household expenditure and n the household size. The vector of control variables Z includes head's sex dummy, head's age dummies, presence of a couple, highest education level among members aged 15 and over dummies, head's ethnicity dummy, rural and regional dummies. This vector aims at controlling for determinants of household expenditures and preferences. To compute the OER we replace n_j/n and $p_i q_i/x$ by their mean values on all sample of households. The estimated π_i^r should be approximately equivalent across adult goods when the demographic separability holds. Considering all adult goods together allow concluding by how much total adult consumption is reduced when an additional child enters the household. We derive standards errors from 100 π^r using non-parametric bootstrap. Regressions of Equation 5 run on 100 synthetic samples of the same size as our sample and OER are computed in each instance; this method presents the advantage to account for the non-linear nature of OER.

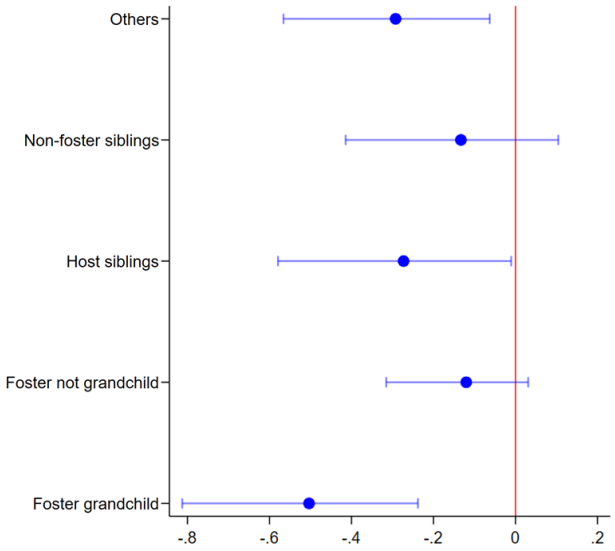
As child groups are built according to their fostering arrangement, we should be cautious in comparing OER between children as they depend on their fostering status and their household structure. We just analyze the ranking of OER among the different child groups. Then we compare OER among foster children. We test whether the negative impact of a foster grandchild is superior to the impact of a foster child who is not a grandchild of the head ($\pi^G < \pi^C$). If grandparent caregivers demonstrate more altruism toward foster children than other caregivers, we expect that adults cut back strongly on their expenses when a grandchild is hosted.

3.2.3 Estimation result

The OER have been computed for the 5 groups of children, for each expenditure in the selected adult goods, and total expenditure dedicated to adult consumption. For most adult goods i, π_i^r ratios are negatives as children are

unlikely to consume these goods (Appendix, Table A.4). An additional child could induce substitution away from adult goods such as alcohol or gambling. Moreover, the age range of children considered includes young teenagers who may already consume adult goods. For instance, teenage girls may already wear women's clothes. Allocation of household resources among adult goods depends on the preferences of adults members (and their possible addiction to alcohol, tobacco, and gambling). Expenses variables have different distributions according to the adult good i considered.The aggregated share of the budget dedicated to adult goods reflects all adult consumption regardless of the members' preferences in allocating resources between goods i. Figure 2 draws π^r ratios for r =G,C,H,S,O, with their 95 percent confidence interval.

Figure 2: OER computed using aggregated adult goods expenditure



Notes: household sampling weights have been used to estimate coefficients needed to compute OER; sample includes households with children aged 6-14. Non-parametric bootstrap method have been performed regressing equation 5 on 100 synthetic samples to compute 95 percent confidence intervals.
Source: Author's elaboration on GLSS6.

Most host siblings are head's children, foster siblings are likely to be their cousins or other relatives. 80.75 of host siblings do not live in households with foster children who are grandchildren of the head. We can observe discrimination among the foster children and the host siblings through their OER. π^H is more than twice inferior to π^C; but their confidence intervals overlap, so we

cannot affirm that foster sibling are discriminated against by biological children when they are not cared for by their grandparents. The impact of a new biological child in foster-out households decreases adult goods consumption, equivalent to an outlay reduction of 13.3 percent. When a child integrates the household of her grandparent, on average, the latter reduces more their own consumption than the parents who foster-out. The addition of a foster child in his grandparents' household reduces adult goods expenses by as much as would a 50.3 percent reduction in total household expenditure per capita. When a foster child enters a household of another caregiver, adults reduce their expenditures by the equivalent of 12 percent outlay. Grandparents sacrifice about 38 percent more of their adult goods budget for foster children than other caregivers; this difference is highly significant using a ttest to compare π^G and π^C .

Even if these results suggest an economic mechanism explaining why grandparents are the preferred caregivers, it does not fully reflect the altruism of caregivers. First, children can also be strategically fostered to grandparents because they have low expenses on adult goods. Indeed, grandparent caregivers spend on average 1 percentage point less in adult goods than other caregivers of foster children. Parents may select households among the network that are unlikely to spend money for our selected adults goods. For instance, grandparents' host households dedicate a smaller share of their annual budget to clothing, maybe because they have already acquired these goods over their lives. However, other caregivers are more likely to have children of the same age as foster children. Their households could have a comparative advantage as they already have child goods such as clothing, toys, school uniforms. On average, children from groups C and H have close negative OER, meaning their caregiver supports an equivalent cost for those children. However, most of C's caregivers (85.2 percent) have a coresident biological child under 15. It means that 39.7 percent of C have a host siblings H with whom they can share some items, relatively to 13.8 percent of foster grandchildren. Finally, this method assumes that when a child enters a household, the household budget does not vary. Results presented in the Sub-section 2.3 indicate that inter-household transfers could be related to child fostering. Transfers can encourage the caregiver to substitute adult consumption for child consumption. From another point of view, grandparents may also demonstrate altruism toward their grandchild located in different households sending money to them and avoiding parents to reduce their consumption. Inter-household transfers within the kinship can influence the intra-household allocation of resources and the well-being of foster children (Cox and Fafchamps, 2007). Our empirical approach highlights how difficult it is to measure the child expenditures and the investment of the

caregivers in child-rearing.

4 Objective child well-being outcomes

The previous results of child educational expenditure and intra-household allocation of resources provide evidence that the caregivers of foster children invest less in their education than for their own children; but even if grandparents have fewer expenses per capita than other caregivers, they allocate more resources to foster children. However, the direct and indirect approaches to assess caregiver investment in child-rearing are subject to measurement errors that could be correlated with fostering arrangement. At this stage of the analysis, we conclude that child fostering impact on school expenses depends on the counterfactual used, i.e, the host siblings or the non-foster siblings and that there is heterogeneity among caregiver decisions about child consumption. Nevertheless, the presented results do not conclude the children's well-being according to their fostering arrangement. We concentrate on 3 objective outcomes: school attendance, the number of work hours, and household chores over the week before the individual interview. We regress each outcome on interest dummies for child's groups following equation 1. Children are divided in mutually exclusive groups described in Section 3.1 (F, H, S, O and G,C).

Table 4 reveals that foster children are less likely to go to school and dedicate more time to work than their host siblings. Foster children have a 3.3 percentage points lower probability of attending school, meaning a 3.6 percent decrease from the baseline (98.2 percent). They also spend 1 hour more on work activities. Foster children seem to have worst well-being outcomes than their host siblings. Notice that 90.7 percent of biological children in foster-in households are head's children (Table 1). The latter could be advantaged by their biological link with the household head (Cox, 2007). When we change the counterfactual, i.e., comparing foster children to their non-foster siblings, foster children have the same probability of attending school and dedicate the same time to work activities. However, they spent more time on household chores the week before the interview (49 minutes). These results indicate that fostering does not lead to improving child well-being. Nevertheless, when we divide the foster children according to their primary caregiver, our results indicate that foster grandchildren work 1 and a half hours less than their non-foster siblings. Furthermore, there is no other significant difference between foster grandchildren and all the other categories of children. This provides evidence that child fostering is not detrimental to child well-being when a grandparent is their primary caregiver. Other

Table 4: Children's well-being outcomes according to their fostering arrangement

	School attendance		Hourse worked		Hours of chores	
Foster child	-0.015		0.542		0.924***	
	(0.009)		(0.361)		(0.218)	
Foster grandchild		0.004		-0.421		0.523*
		(0.014)		(0.452)		(0.281)
Foster not grandchild		-0.027***		1.198***		1.197***
		(0.010)		(0.454)		(0.264)
Host sibling	0.019**	0.019**	-0.547	-0.571	0.780***	0.769***
	(0.009)	(0.009)	(0.417)	(0.417)	(0.275)	(0.276)
Non-foster sibling	-0.019*	-0.019**	1.161***	1.172***	0.119	0.124
	(0.009)	(0.009)	(0.365)	(0.365)	(0.210)	(0.210)
Adjusted R^2	0.106	0.107	0.107	0.108	0.220	0.220
Observations	13,893	13,893	13,893	13,893	13,893	13,893
Differences						
Foster child - Host sibling	-0.033***		1.089**		0.145	
Foster child - Non-foster sibling	0.004		-0.619		0.805***	
Foster grandchild - Host sibling		-0.015		0.150		-0.246
Foster grandchild - Non-foster sibling		0.023		-1.594***		0.399
Foster not grandchild - Host sibling		-0.046***		1.770***		0.428
Foster not grandchild - Non-foster sibling		-0.008		0.026		1.074***
Foster grandchild - Foster not grandchild		0.031**		-1.620***		-0.674**
Average outcome (Other)	0.932	0.932	3.674	3.674	5.200	5.200
Dummies:						
Region and rural area	Yes	Yes	Yes	Yes	Yes	Yes
Age x sex	Yes	Yes	Yes	Yes	Yes	Yes
Household controls	Yes	Yes	Yes	Yes	Yes	Yes

Notes: estimations have been produced using individual sampling weights; the sample includes children aged 6-14; Household dummies include: number of members per sex and per age class [0;5], [6;14], [15;50], [50;98], presence of a couple, highest education level among members aged 15 and over; *** p <0.01, ** p <0.05, * p <0.1.
Source: Author's elaboration on GLSS6.

caregivers bear the adverse effects of child fostering.

As our identification of non-foster siblings is conditional on the presence of the mother, one might think that the differences between children are also driven by the presence of the mother for host siblings and other children. When we restrict non-foster children to those co-residing with their mother, results are stable and similar in magnitude (Appendix, Table A.5). Also, even though few children with co-resident parents are the head's grandchildren, the findings may be due to the relationship to the head of the household and not to the child's foster care status. Indeed, when comparing foster children to other grandchildren of the head, there is no significant difference by child status (Appendix, Table A.6). Within household selection into fostering is the principal threat to our interpretation. Foster children have better well-being outcomes when they are the grandchild of the host household's head than with other caregivers or compared to their non-foster siblings. Nevertheless, we cannot affirm that grandparenting causes a well-being improvement for foster children; they might be the most promising children of their siblings. Investment of the caregivers depends on the child's expected returns from education and sibling rivalry (Becker, 1991; Morduch, 2000). Households could foster-out the child who has more chance to accumulate human capital to his grandparents' place. Then fostering arrangements are linked to the characteristics of the child and his household of origin measured before the relocation. This information is not available in usual large-scale surveys. Even if we are not able to assess a causal impact, our results are still informative about relative foster children's well-being according to their caregivers.

5 Concluding remarks

Most foster children are hosted in households of their extended family. The predominant fostering arrangement involves sending the children to live with their grandparents. More than half of foster children are grandchildren of the head in Ghana.[22] In 10.3 percent of cases, a grandparent, especially a grandmother, is the primary caregiver of children aged 6-14. We have provided evidence that this specific fostering arrangement is not unfavorable to child-rearing. Foster children have better well-being outcomes living with their grandparents instead of other caregivers. They have the same probability of attending school and dedicate the same time to work activities and household chores as children with biological parents in foster-in households. Relatively

[22] Lachaud et al. (2016) found a similar pattern of fostering arrangements for Cameroonian children.

to their non-foster siblings, foster grandchildren even spend less time on work activities. Even if foster children could be better off in their host household, non-parental caregivers still invest less in child education. Yet, the latter has more resources than foster-out households. The wealth difference is higher when the caregiver is not a grandparent. More precisely, when the caregiver is not a grandparent, children are fostered in households on average 26 percent wealthier than their parents' households. Even if grandparents have more limited resources than other caregivers of foster children, they allocate more resources to rear them. When grandparents host an additional foster child, the latter cut back more on adult consumption than other caregivers. Grandparent fostering could help parents without compromising the well-being of their children. Child fostering is sustained by the inter-generational support shown by Ghanaian households and favors inter-household transfers within the kinship network.

The reason for fostering and the parents' expectation in terms of child well-being are likely to influence the choice of the caregiver. The analysis produced by Poeze et al. (2017) indicates that Ghanaian migrant parents prefer to leave their children at their grandparents' place. With the data from GLSS6 we cannot control our estimation with characteristics of the household of origin of foster children, and we cannot identify children left behind. If migrant parents have different preferences than other parents for child education, being hosted by grandparents could correlate with parents' investment in education and their ability to send transfers. Our results put forward that households with grandparent fostering are net recipients of money transfers and a large share received from an individual who could be the biological parent of a foster child. The characteristics of the kinship network and family ties with migrants are likely to shape fostering arrangement of Ghanaian children. To increase our knowledge on the prevalence of migration in the practice of child fostering, survey designs questioning the location of absent parents and the transfers they send to children would be necessary.

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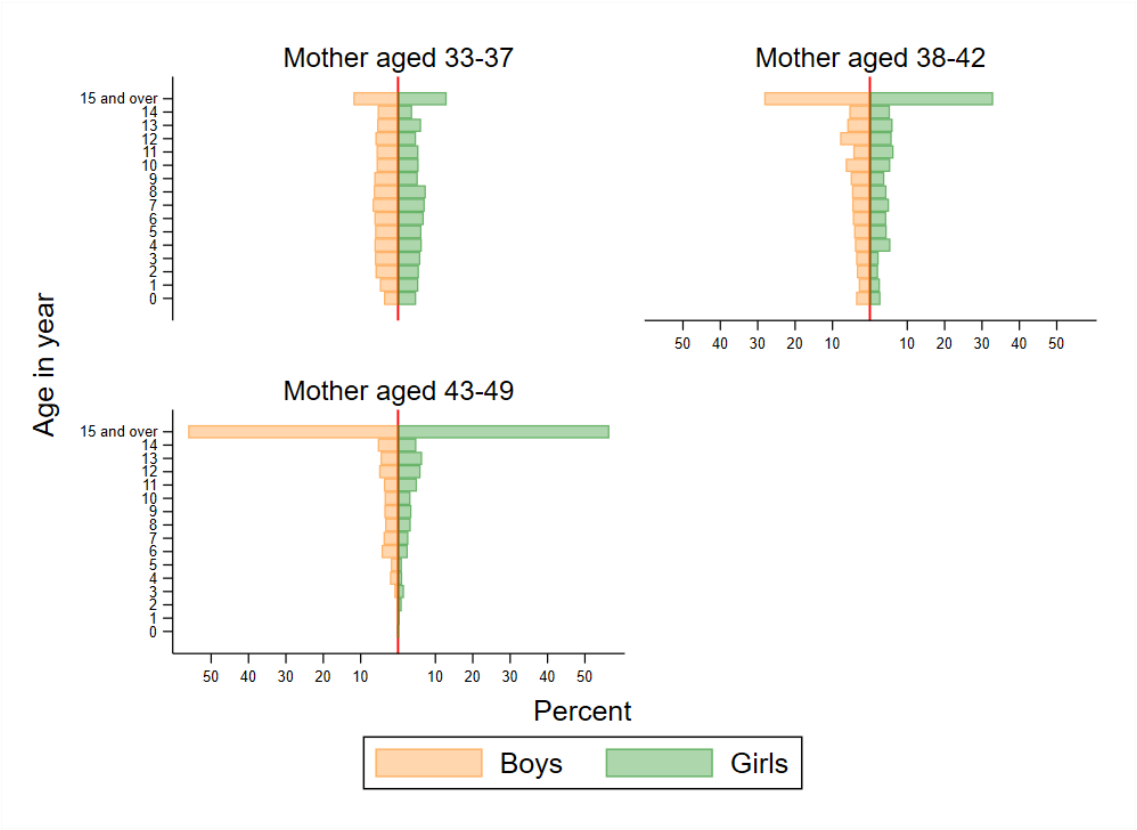
A Appendix

Figure A.1: Age pyramid of children co-residing with all siblings, by age of the mother



Notes: shares have been computed using individual sampling weights; sample includes individuals with a co-resident mother who answered the fertility module of the GLSS6 and who is co-residing with all her alive children.
Source: Author's elaboration on GLSS6.

Table A.1: Children's school expenses according to their fostering arrangement, with extended set of household control variables

	School expenses			
Foster child	-0.220***	-0.120***	-0.211***	
	(0.042)	(0.038)	(0.036)	
Foster grandchild				-0.114**
				(0.054)
Foster not grandchild				-0.124***
				(0.045)
Host sibling	0.149***	0.102**	0.056	0.102**
	(0.045)	(0.040)	(0.037)	(0.040)
Non-foster sibling	-0.107**	-0.026	-0.020	-0.026
	(0.044)	(0.042)	(0.038)	(0.042)
Adjusted R^2	0.427	0.518	0.584	0.518
Observations	12,309	12,309	12,309	12,309
Differences				
Foster child - Host sibling	-0.368***	-0.223***	-0.266***	
Foster child - Non-foster sibling	-0.113*	-0.094*	-0.191***	
Foster grandchild - Host sibling				-0.216***
Foster grandchild - Non-foster sibling				-0.088
Foster not grandchild - Host sibling				-0.226***
Foster not grandchild - Non-foster sibling				-0.098
Foster grandchild - Foster not grandchild				0.010
Dummies:				
Region and rural area	Yes	Yes	Yes	Yes
Age x sex	Yes	Yes	Yes	Yes
Household controls	Yes	Yes	Yes	Yes
Head characteristics	Yes	Yes	Yes	Yes
Education level and private school	No	Yes	Yes	Yes
Household expenditure per capita	No	No	Yes	Yes

Notes: estimations have been produced using individual sampling weights; the sample includes children aged 6-14; average outcome for the baseline category (Other) is 5.040; Household dummies include: number of members per sex and per age class [0;5], [6;14], [15;50], [50;98], presence of a couple, highest education level among members aged 15 and over; a log transformation is applied to School expenses and Household expenditure per capita; Head characteristics dummies include: female head, head's age and head is Akan; *** p <0.01, ** p <0.05, * p <0.1.
Source: Author's elaboration on GLSS6.

Table A.2: Demographic separability of adult goods

	Clothing	Newspapers	Hair	Jewelry	Alcohol and tobacco	Gambling
OLS						
Number: Girls 6-14	4.719	-0.380	6.191	-0.161*	-2.606	-1.656
	(6.618)	(0.607)	(5.715)	(0.093)	(3.950)	(2.876)
Number: Boys 6-14	10.597	-0.664	-5.591	-0.515	-6.775*	2.162
	(8.131)	(0.534)	(7.240)	(0.383)	(3.520)	(3.204)
IV						
Number: Girls 6-14	-1.835	-0.912	2.971	-0.344	0.587	-0.536
	(5.856)	(0.709)	(4.296)	(0.383)	(3.638)	(2.813)
Number: Boys 6-14	6.086	-1.030	-7.807*	-0.640*	-4.577	2.933
	(5.664)	(0.686)	(4.155)	(0.370)	(3.519)	(2.721)
Observations	7,335	7,335	7,335	7,335	7,335	7,335
Dummies						
Region and rural area	Yes	Yes	Yes	Yes	Yes	Yes
Household controls	Yes	Yes	Yes	Yes	Yes	Yes

Notes: estimations have been produced using household sampling weights; the sample includes households with children aged 6-14; Household dummies include: number of members per sex and per age class [0;5], [15;50], [50;98], female head, head's age, presence of a couple, highest education level among members aged 15 and over, head is Akan; *** $p<0.01$, ** $p<0.05$, * $p<0.1$.
Source: Author's elaboration on GLSS6.

Table A.3: Elasticities of adult goods

Adult goods	Expenditure elasticity
Clothing	1.04
Newspapers	0.10
Hair	1.59
Jewelry	0.11
Alcohol and tobacco	0.42
Gambling	0.32
All	1.04
Observations	7,335

Notes: estimations have been produced using household sampling weights; the sample includes households with children aged 6-14.
Source: Author's elaboration on GLSS6.

Table A.4: OER computed for each adult good and child type

	Foster grandchild	Foster not grandchild	Host sibling	Non-foster sibling	Other
Clothing	-0.529	0.031	-0.290	-0.300	-0.331
Newspapers	-2.144	-0.866	-0.785	-0.040	-0.408
Hair	-0.935	-1.086	-0.281	0.148	-0.105
Jewelry	-0.259	-0.627	-1.747	-1.181	-1.351
Alcohol and tobacco	0.747	1.291	-0.340	-0.514	-0.403
Lottery	-1.021	-0.332	0.005	0.493	-0.409
All	-0.503	-0.120	-0.273	-0.133	-0.292

Notes: household sampling weights have been used to estimate coefficients needed to compute OER; sample includes households with children aged 6-14.
Source: Author's elaboration on GLSS6.

Table A.5: Children's well-being outcomes according to their fostering arrangement, restricted to children with a co-resident mother as the baseline

	School attendance	Hourse worked	Hours of chores	School expenses
Foster grandchild	-0.009	-0.350	0.591**	-0.109**
	(0.013)	(0.480)	(0.293)	(0.052)
Foster not grandchild	-0.032***	1.159**	1.228***	-0.137***
	(0.010)	(0.460)	(0.269)	(0.046)
Host siblings, co-resident mother	0.016*	-0.525	0.806***	0.120***
	(0.009)	(0.424)	(0.292)	(0.041)
Non-foster siblings	-0.021**	1.215***	0.136	-0.018
	(0.009)	(0.363)	(0.211)	(0.042)
Adjusted R^2	0.106	0.109	0.221	0.512
Observations	13,210	13,210	13,210	11,710
Differences				
Foster grandchild - Host sibling	-0.025	0.175	-0.215	-0.230***
Foster grandchild - Non-foster sibling	0.012	-1.565***	0.455	-0.091
Foster not grandchild - Host sibling	-0.048***	1.684***	0.422	-0.258***
Foster not grandchild - Non-foster sibling	-0.011	-0.056	1.092***	-0.119**
Foster grandchild - Foster not grandchild	0.023	-1.509***	-0.638*	0.028
Average outcome (Other, co-resident mother)	0.937	3.584	5.124	5.039
Dummies:				
Region and rural area	Yes	Yes	Yes	Yes
Age x sex	Yes	Yes	Yes	Yes
Household controls	Yes	Yes	Yes	Yes
Education level and private school	No	No	No	Yes

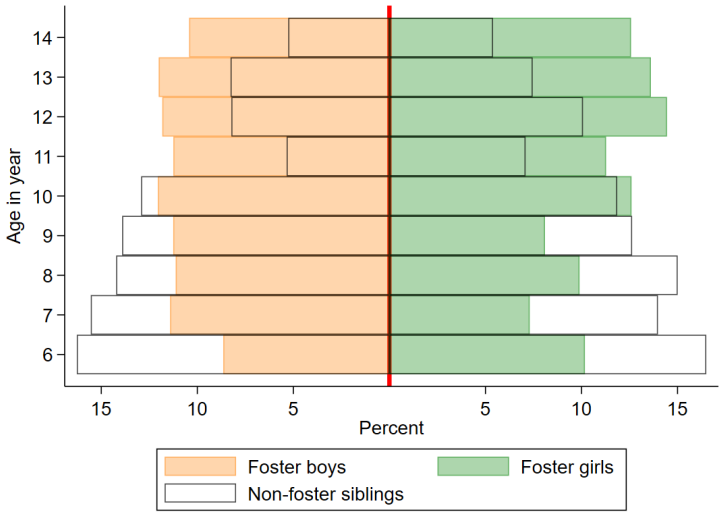
Notes: estimations have been produced using individual sampling weights; the sample includes children aged 6-14; Household dummies include: number of members per sex and per age class [0;5], [6;14], [15;50], [50;98], presence of a couple, highest education level among members aged 15 and over; a log transformation is applied to School expenses; *** $p<0.01$, ** $p<0.05$, * $p<0.1$.
Source: Author's elaboration on GLSS6.

Table A.6: Children's well-being outcomes according to their fostering arrangement, exhaustive comparison

	School attendance	Hourse worked	Hours of chores	School expenses
Foster grandchild	0.028	1.315**	0.779	-0.008
	(0.025)	(0.656)	(0.497)	(0.117)
Foster not grandchild	-0.028***	1.124**	1.178***	-0.141***
	(0.010)	(0.460)	(0.266)	(0.045)
Grandchild of head	-0.027	-1.882***	-0.297	-0.098
	(0.023)	(0.669)	(0.482)	(0.113)
Host sibling, grandchild	-0.002	2.622	1.828**	0.144
	(0.049)	(2.403)	(0.881)	(0.200)
Host sibling, not grandchild	0.021**	-0.731*	0.704**	0.105**
	(0.009)	(0.413)	(0.287)	(0.041)
Non-foster sibling, grandchild	0.023	2.283	-1.555	0.008
	(0.044)	(1.433)	(1.722)	(0.331)
Non-foster sibling, not grandchild	-0.020**	1.165***	0.186	-0.016
	(0.010)	(0.373)	(0.209)	(0.042)
Adjusted R^2	0.107	0.108	0.220	0.511
Observations	13,893	13,893	13,893	12,309
Differences				
Grandchildren: Foster child - Host sibling	0.030	-1.308	-1.049	-0.152
Grandchildren: Foster child - Non-foster sibling	0.005	-0.968	2.334	-0.016
Not grandchildren: Foster child- Host sibling	-0.049***	1.855***	0.474	-0.246***
Not grandchildren: Foster child - Non-foster sibling	-0.009	-0.041	0.992***	-0.125**
Foster grandchild - Foster not grandchild	0.057**	0.191	-0.399	0.133
Average outcome (Other)	0.932	3.674	5.200	5.040
Dummies:				
Region and rural area	Yes	Yes	Yes	Yes
Age x sex	Yes	Yes	Yes	Yes
Household controls	Yes	Yes	Yes	Yes
Education level and private school	No	No	No	Yes

Notes: estimations have been produced using individual sampling weights; the sample includes children aged 6-14; Household dummies include: number of members per sex and per age class [0;5], [6;14], [15;50], [50;98], presence of a couple, highest education level among members aged 15 and over; a log transformation is applied to School expenses; *** $p<0.01$, ** $p<0.05$, * $p<0.1$.
Source: Author's elaboration on GLSS6.

Figure A.2: Age pyramid of foster children and non-foster siblings



Notes: shares have been computed using individual sampling weights.
Source: Author's elaboration on GLSS6.