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## Child Fostering and Children's Human Capital in Ouagadougou

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### Abstract

Questions continue to arise about the benefits and challenges of child fostering on children's human capital, particularly in West Africa. For technical and operational purposes, empirical studies have generally considered fostered children as a homogeneous group, despite the well-examined complexity of this matter. This paper aims to provide a more insightful view of the potential effects of child fostering on educational outcomes in the capital city of Ouagadougou, in Burkina Faso. Beyond the comparison of children who have been fostered in the past to their own siblings, this paper analyzes the heterogeneity of child fostering by considering such factors as sex, and the kinship relationship between the foster household head and the child's biological mother. Probit models are used with interaction terms. Sensitivity analyses were conducted to assess the consistency of our results. The results show that a negative effect of child fostering remains, but girls who were fostered after 10 years of age appear to be most disadvantaged compared with their peers after controlling for all other factors.

### Keywords

Child fostering, education outcomes, kinship, heterogeneity, Ouagadougou

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## 1. Introduction

In countries in sub-Saharan Africa, temporarily fostering children to another family member is a long-standing traditional practice. Based on the principle of kin and community responsibility for child rearing, child fostering is generally described as part of a multidimensional mutual support strategy developed by African families (Bachan 2014; Dahl 2009; Eloundou-Enyegue and Shapiro 2004). On one hand, fostering has developed as a socialization or educational process that contributes to the maintenance of standards of community and family values and that eventually leads to formal education and professional apprenticeship (Goody 1982). Thus, the process eases children's integration into community life and increases their chances for a better future. Child fostering thereby represents a traditional integration process re(Ainsworth and Filmer 2006; Akresh 2004, 2009b; Bledsoe and Isiugo-Abanihe 1989; Goody 1978, 1982; Pilon 2003).

On the other hand, child fostering could also be interpreted as a process that contributes to the strengthening of family ties and to children's well-being (Akresh 2004, 2005; Eloundou-Enyegue and Shapiro 2004). Traditionally, in West African countries, the fostered child becomes a new and equal (the same as the natal child) member of the host household. For instance, in the Ghanaian case, Goody (1982) explained that foster children even call their foster parents "mother/father". Foster children often develop dual moral: a moral obligation toward the biological parents and a reciprocity of rearing derived from the emotional and moral dependency that arises from the relationship with the fostering parents (Goody 1978, 1982).

Nevertheless, compared with the biological children in the foster household, numerous studies have shown that foster children generally have large educational deficits (Ainsworth and Filmer 2006; Pilon 2003, 2007; UNICEF 1999; Vreyer 1994). In terms of education, foster children seem strongly disadvantaged compared with the host household's own children in sub-Saharan urban areas (Pilon 2003). This negative association appears in different measures of children's educational outcomes. Foster children are largely underschooled, often less likely to attain high educational levels even when they are enrolled. This educational deficit is more pronounced for girls than for boys (Ainsworth and Filmer 2006; Marcoux 1998; Pilon 2003, 2007; UNICEF 1999; Vreyer 1994).

Regarding this situation, several scholars have noted a decline in the traditional motivations underlying the child-fostering practice, especially in urban areas (Ainsworth and Filmer 2006; Bledsoe and Isiugo-Abanihe 1989; Dahl 2009; Kielland 1999; Pilon 2003; UNICEF 1999; Vreyer 1994). First, these authors argue that the new lifestyle in urban areas and exposure to new ideas from the outside world contribute to a narrowing of the traditional definition of family and a subversion of family networks and, consequently, to the traditional motivation underlying child fostering. Second, contrary to the past, children's socialization depends more on formal education than on informal apprenticeship. Formal education is expensive and requires long-term investments

of money and time that considerably increase childrearing costs. Therefore, taking in foster children leads to more substantial costs for the foster family's household in urban areas (Ainsworth and Filmer 2006; Akresh 2009a; Bledsoe and Isiugo-Abanihe 1989; Caldwell 1997; Dahl 2009; Eloundou-Enyegue and Shapiro 2004; Isiugo-Abanihe 1985; Lloyd and Desai 1992).

Nevertheless, recent studies have examined closely the seemingly negative effects of child fostering on children's human capital and have argued that these findings may be biased and spurious (Akresh 2004, 2009b; Bougma et al. 2014). On the one hand, as argued by Akresh (2004), comparing foster children to natal children in the foster household is an inadequate method for evaluating the effects of child fostering. According to the author, foster children often come from worse off circumstances and have lesser access to school prior to the fostering than host children. It is possible that those factors are drivers of the educational deficit of foster children compared with host children. Therefore, the assessment of child fostering on educational outcomes should be performed with respect to the foster children's own siblings, with whom they shared the same life conditions before the fostering. Moreover, insofar as child fostering is a temporary act, its effects are better evaluated when the foster period is over and the child has returned to live with his biological household or even over the child's lifetime.

Moreover, although child fostering in the African context is complex, operational issues have led empirical studies to generally consider foster children as a homogeneous group or mainly differentiated by gender (Ainsworth and Filmer 2006; Bledsoe and Isiugo-Abanihe 1989; Pilon 2003). However, numerous factors underlying child fostering contradict this basic assumption of homogeneity (Ainsworth and Filmer 2006; Akresh 2009a; Bledsoe and Isiugo-Abanihe 1989; Bougma et al. 2014). Beyond some unobservable factors, such as parents' perceptions of the child's ability or personality, several factors could provide a deeper understanding of the heterogeneity of child fostering, including the sex of the foster children, the relationship of the child's mother with the head of the foster household, the child's age at the time of fostering, and multiple fostering instances.

### *Gender perspective*

The gender aspect of child fostering might be the only differentiating factor that has received greater attention from the demographic literature (Ainsworth and Filmer 2006; Bledsoe and Isiugo-Abanihe 1989; Vreyer 1994). Various studies have argued that the reduction in family size in urban areas, including in Ouagadougou, may have led to an enhanced need for additional or substitutable hands (Ainsworth and Filmer 2006; Bledsoe and Isiugo-Abanihe 1989; Lachaud 2015; Vreyer 1994). Therefore, hosting foster children may at least partly be a strategy used to ameliorate the demographic deficit to execute certain specific tasks. These duties mostly include performing domestic chores at a lower cost, and they may be intended to facilitate women's active participation in the labor market. Based on the gender division of work in West African societies, there is preference for foster girls or female housekeepers for such tasks. Indeed, the data generally show

that more girls are fostered than boys. Several studies have also reported that the daily lives of foster girls include cooking, cleaning, caring for children, fetching water and running errands (Ainsworth and Filmer 2006; Akresh 2009a; Bledsoe and Isiugo-Abanihe 1989).

### *Kinship ties*

The strength of the kinship ties of the child's mother with the head of the foster household may play a significant role in the decision-making involved in fostering a child; it may also determine the type of treatment that a foster child receives (Akresh 2004; Alber 2004; Bougma et al. 2014; Goody 1978, 1982; Pilon 2003). Members of the extended family, such as the mother's parents, the mother's siblings or even other family members of the mother, such as her cousins, are the main destinations for foster children. We could expect that grandparents generally raise foster children as they did their own children. That manner of fostering, however, may differ substantially from other foster households (e.g. those headed by one of the mother's siblings). That expectation could explain why, in the African context, young couples prefer to send their children to their grandparents during early childhood. As stated by Goody (1978: p. 480):

*“Mothers are often in need of someone to take care of an infant while they work or establish a stable conjugal union. The woman for whom a mother has the strongest claim for such a service is her own mother....”*

However, grandparents generally still live in the same village, where access to school might be difficult in comparison with other family members, who may live in urban areas. Such a situation could explain some preferences for collateral kin as the destination for foster children (Goody 1978).

### *Age at fostering*

The child's age at fostering could indicate how useful the child is to fulfill some specific tasks and contribute to household activities. Thus, this factor would influence decision-making with regard to fostering by both the original and the foster households. Being fostered in early childhood reflects an appreciable burden on the foster household as opposed to bringing in a helper. In contrast, being fostered in early adolescence means that the children can participate in domestic chores and other household activities. That is, the age at the time of fostering (and the sex) could be a good indicator of what a foster household is expecting from a child. In addition, for the original household, the age at the time of fostering helps biological parents evaluate – even subjectively – the abilities of a child to adapt to the outside world and his/her chances for success.

### *Multiple fostering*

Multiple fostering instances are generally not addressed in the literature of child fostering practice in African countries. Many reasons may account for this situation, such as unsafety in the host household and child abuses, which are mostly underreported. Recurrent moves during childhood often brings instability in the life and development of children (e.g. repeated changes in the school environment could lead to a child dropping out of school). However, the potential effect of multiple fostering instances on educational outcomes remains understudied in the African context.

A combination of these factors could enrich the examination of child fostering to better understand its heterogeneous aspects. For instance, child fostering does not necessarily have the same impact on children's human capital for young girls than for young boys. Moreover, other factors, such as the duration of the fostering and the number of episodes of fostering, could also substantially differentiate its impact.

### *Objectives*

From this perspective, the purpose of this paper is to provide a more insightful view of the empirical assessment of the effect of child fostering on educational outcomes in Ouagadougou, the capital city of Burkina Faso. In Ouagadougou, the percentage of foster children is quite high. Moreover, unique and detailed data on the issue under study has been collected. In the present study, we categorized child fostering by considering sex, the relationship of the mother with the foster household, the child's age at the time of fostering, and multiple child fostering instances.

This rest of the paper is organized as follows. In the next section, we present the context of the study. Afterwards, we introduce the data and statistical models used in the analysis. Section four presents/analyzes the results and, in section five, we summarize our conclusions.

## **2. Context**

Child fostering is widespread in almost all sub-Saharan countries. Pilon (2003), in a study over ten countries in West Africa, reported that the percentage of households with a least one foster child is between to 15.7 per cent in Ghana to 32.1 per cent in Senegal. In Burkina Faso, the country of interest in this study, the percentage of households with foster children was 26.8 per cent in urban areas and 19.7 per cent in rural areas (Pilon). This situation seems to not have change over the last decade. Demographic Health Survey (DHS) data from 2012 indicate that the percentages of households in Burkina Faso currently fostering children are 26.4 per cent and 16.2 per cent in urban and rural areas, respectively. This percentage is 28.4 per cent in Ouagadougou. The total number of foster children in 2012 in Burkina Faso represented approximately 7.8 per cent of children under 15 years of age and 9.2 per cent of those under 18 years of age. By gender, 7.3 per cent of boys and 11.2 per cent of girls are fostered. The 10-14 age range is the most fostered group and represents

more than 37 per cent of currently fostered children. In Burkina Faso, 10-11-12 years old are considered as the age where demand for young girls for domestic chores starts to become substantial, which also corresponds to the highest point of the schooling attendance curve before the rapid decline of schooling attendance (Kobiané 2006; Lachaud 2015). Moreover, those children are likely fostered in rich households (approximately 17.5 per cent), rather than poor households (7.6 per cent).

### **3. Data and methodology**

#### *Data*

This paper uses data from the Demtrend project, which is based on a subsample of the population followed by the Health and Demographic Surveillance System of Ouagadougou (HDSS). Since 2008, this surveillance system has monitored approximately 83,000 residents living in five areas in the northern part of Ouagadougou: two “formal” and three “informal” neighborhoods that have very little public infrastructure (Rossier et al. 2012). The Demtrend survey, which was conducted in 2012, sought to study the “consequences of family-building strategies and household composition on schooling and child labor in urban Burkina Faso.” It collected data on 2,952 women aged 35-59 years with at least one child surviving to three years or older who lived in one of the five aforementioned areas. These data were merged with complementary data on household characteristics collected by the HDSS system during the third round, which was undertaken three months prior to the Demtrend survey (Kobiané et al. 2013; Lachaud et al. 2014).

Detailed data were collected on each woman’s child schooling and fostering, residing at the family home. For example, mothers were asked if each child has been fostered in the past. If the answer was “yes,” they were subsequently questioned on the number of instances, the age at each instance, the duration, and the places where they were fostered. Note, however, that the age groups in which a child living in another household rather than his/her parental one should be considered as a foster child remains ambiguous (Pilon 2003). Therefore, we referred to the minimum age in Burkina Faso for paid labor, 6 years old, which corresponds to the age of completion of compulsory schooling.<sup>3,4</sup> From the age 16, the line between working and being fostered at 16 years or more becomes undiscernible and uncertain, so we focus on fostering instances occurred before 16 years old. By the same token, note that children are still exposed to be fostered before 16. Thus, parent’s educational behavior toward them at the time of the survey might be an anticipation to a future (and yet unknown) fostering decision. Therefore, the population of interest is youths from 16 to 18

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years old. The upper limit 18 corresponds to the age of civil majority, and children start to leave the family home for many reasons: marriage (especially for girls), employment, or other reasons (Ainsworth 1996; Bledsoe and Isiugo-Abanihe 1989; Isiugo-Abanihe 1985; Lloyd and Blanc 1996; Pilon 2003). Since the module on fostering were collected only for children residing in the family home, retaining those who are older than 18 in our analysis would lead to substantial attrition in the sample.

Another methodological concern is about those who are between 16 and 18 years old and did not reside at family home during the survey. Their absence might be the result of early fostering instance before 16. Such consideration would underestimate the percentage of youths who had been fostered in the past and thus would bias the results. Despite this, one of the advantages of this study is that we have used a unique and rich dataset in the African context – collecting and using a detailed information dataset on the trajectory of children’s residence since when they were born.

As shown in the summary statistics in table 1, the sample size of the study is 1,373 youths, in which 5.9 per cent had been fostered at least once in the past (see table 1). Note that our investigation focuses on the first fostering instance because the sample of those who have been fostered twice or more is too small (only four youths) to undertake further analysis (see table 1).

### *Variables*

We focus on fostering that occurred in the past and before 16 years old. Our dependent variables are, however, about the current educational status of youths. Thus, two main dependent variables are used: 1) current school enrollment as a dichotomous variable, and 2) current enrollment in post-primary school as a dichotomous variable.

Since education level is low in Burkina Faso, enrollment in post-primary school means a long-term commitment and a cumulative investment of parents in their children’s human capital development. Attaining post-primary school represents the successful completion of six years of primary education, the first school diploma, followed by registration in the seventh year of elementary education. In addition, notwithstanding attaining post-primary school is compulsory in Burkina Faso since the educational reform of 2000, post-primary education is mainly ensured by the private sector in Ouagadougou, and the family is financially responsible for the cost of attendance (Kobiané and Dramane 2012; Kobiané et al. 2013; Lachaud et al. 2014).

In the present study, the main independent variable is “having been fostered in the past.” In terms of methodology, the youths were divided into two groups: those who had been fostered in the past, and those who had never been fostered. Then, to operationalize the heterogeneity of the aforementioned child fostering, we computed four interaction variables:

First, child fostering by sex with the following three interaction terms: “never been fostered” (as the reference category), “fostered girl,” and “fostered boy.”

Second, child fostering considering the kinship ties between the mother of the fostered child and the head of the foster household, retaining three types of kinship ties: lineal ascendant and descendant, collateral, and remote/no relationship. Thus, we created a variable with four interaction terms: “never been fostered,” “fostered by grandparents or older children,” “fostered by mother’s siblings,” and “fostered by remote family members or other.”

Third, besides the literature on kinship ties, we combined lineal ascendant and descendant to avoid too many analysis groups. Since the number of those who have been fostered is small, this would decrease the statistical power of our analysis. This resulted in the following interaction variable: child fostering considering the child's age at the time of the first fostering. Initially, we considered this as a continuous variable in which age zero (0) means never been fostered. This continuous variable assesses the marginal effect of each additional years of fostering on education outcomes. Then, we codified the interaction variable with the following three modalities: “never been fostered,” “fostered in early childhood before 10 years of age,” and “fostered after 10 years of age.” The cut-off age is fixed to refer to the age in which demand for a foster child (mostly girls) for domestic chores starts to become increasingly important (Kobiané, 2003, 2008).

Finally, the following interaction variable was created: child fostering considering both the child's age at time of fostering and the sex of the child.

To strengthen the comparative analysis, we included a large set of control variables in the regressions. We controlled for youths' age and age at first enrollment. We also controlled for socioeconomic status as measured by a commonly used wealth index based on housing characteristics, family goods and patrimony (Howe 2009; Lachaud et al. 2014; Vyas and Kumaranayake 2006). Socioeconomic status was classified into three categories: poorer, poor and not poor. We also integrated the educational level of the biological mothers according to three levels: no education, primary, and secondary/more. Family size was measured as the number of children ever born to the mother of the youth under study and the household family type (polygamous or not). We also controlled for ethnicity by differentiating between the Mossi group, which represents more than 90 per cent of Ouagadougou's population, and all other groups. Finally, we controlled for the neighborhood of residence – formal vs. informal neighborhood or slums – to control for unequal school access within Ouagadougou. Table 1 lists all of the observable variables included in our analysis.



**Table 1. Summary statistics for the variables used in the analysis**

	Never been fostered (A)		Have been fostered (B)		Sig. of the difference (A)-(B)
<i>Education</i>					
Currently in school (yes=1)	0.68	0.460	0.62	0.489	
Post-primary level (yes=1)±	0.89	0.010	0.76	0.059	**
<i>Young adolescent's characteristics</i>					
Age	17.00	0.819	17.17	0.787	*
Girl (yes=1)	0.47	0.500	0.52	0.503	
Age at school enrollment	6.82	1.440	7.31	1.934	*
<i>Education level of mother</i>					
No education	0.75	0.433	0.77	0.426	
Primary	0.13	0.336	0.12	0.331	
Secondary or more	0.12	0.326	0.11	0.316	
Married (yes=1)	0.89	0.308	0.88	0.331	
Polygamy (yes=1)	0.17	0.375	0.16	0.369	
Family size	5.05	1.685	4.84	1.771	
<i>Socioeconomic status</i>					
Poorer	0.33	0.469	0.41	0.494	†
Poor	0.34	0.474	0.36	0.482	
Not poor	0.33	0.472	0.23	0.426	*
Formal neighborhood (yes=1)	0.72	0.449	0.48	0.503	†
Mossi (yes=1)	0.90	0.298	0.93	0.264	
<i>Fostered children</i>					
Age at time of the first fostering	NA	NA	8.98	3.857	NA
Duration of the first fostering instance	NA	NA	3.27	2.788	NA
Number of fostering instances§	NA	NA	1.05	0.218	NA
<i>Residence at fostering</i>					
To grandparents' household	NA	NA	0.47	0.502	NA
To mother's siblings or older children	NA	NA	0.35	0.479	NA
To another family member	NA	NA	0.19	0.391	NA
Sample size	1292		81		

Sources: Calculated using data from the HDSS and Demtrend 2012

p<0.001 (\*\*\*), 0.01 (\*\*) and 0.05 (\*), † (0.1)

NA=Not applicable

§ Only 4 youths have been fostered more than once

± Computed only for children currently in school, 950 children total

## *Models*

The present study seeks to examine the effects of child fostering instance during the past on current children's education and to assess how they differ systematically as a function of the category of child fostering in the context of the city of Ouagadougou. We use Probit multivariate models to estimate these effects on the probability of a child being currently enrolled in school or of having attained post-primary school. First, we adjusted two models, one for each of our dependent variables – currently in school and having attained post-primary school – with having been fostered in the past (as a dichotomous variable). Then, regressions were estimated separately using interaction terms between having been fostered and the three categorical factors: sex, foster household and age at time of fostering, which allowed us to test the robustness of the estimates. All our models included the control variables. We applied the Stata cluster method to take into consideration the likelihood of correlated errors between sibship living with the same household, and the Hubert-White formula was used to compute robust significance levels.

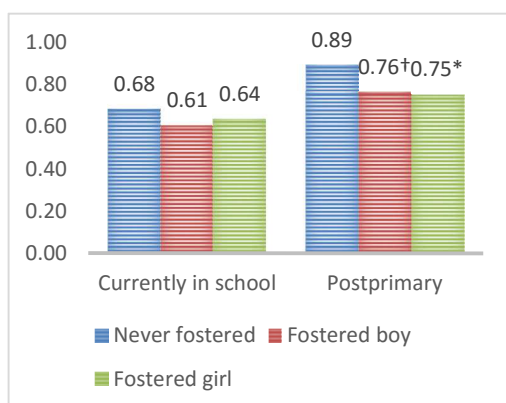
Finally, we assessed the robustness of our results. Note however the size of the sub-sample of those who had been fostered was too small to process to sub-group analysis which would decrease the statistical power of the models; and given that we used a non-linear model, a fixed-effect estimator would have led to inconsistent estimated parameters (Greene 2004). Therefore, to evaluate the consistency of the results, we assumed that the dichotomization of the education outcomes, particularly attaining post-primary school might be measured with errors or lead to loss of information. Thus, we re-estimated our results, considering the number of schooling years as an indicator of education outcomes. Therefore, this assessment allowed us to evaluate the sensitivity of the estimates.

## **4. Results**

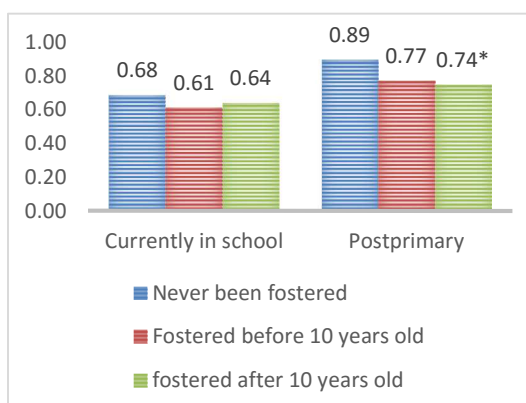
Table 1 presents a data summary. Approximately 6 per cent of the children had been fostered in the past. Among them, 52 per cent were girls. More than 47 per cent of the fostered children had been fostered by their grandparents, 35 per cent by an uncle or aunt, and 19 per cent by other family members. Thus, the extended family remained the main network for child fostering. In addition, children were fostered at an average of 9 years of age; while they have been enrolled in school average occurred at 7.3 years of age. They stayed in average 3.3 years in the first fostering instance. Only four youths in our sample had been fostered more than once.

We also observed that those who had never been fostered were more likely to have had better educational outcomes. Sixty-eight per cent of those who had never been fostered were still in school, compared with 62 per cent of those who had been fostered in the past. In addition, of those who were still in school, 89 per cent who had never been fostered attended post-primary school, whereas among those who had been fostered, 76 per cent attained a post-primary education. This difference in post-primary attainment was statistically significant at a level of 1 per cent.

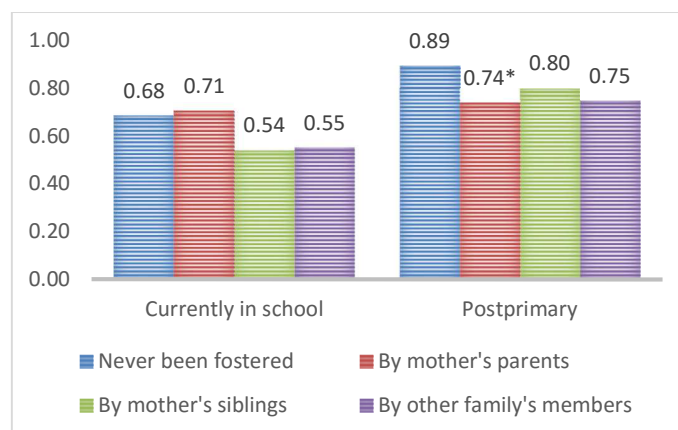
**Fig 1. Proportion of children currently enrolled in school by fostering status and sex**



**Fig 2. Proportion of children currently enrolled in school by fostering status and age at time of fostering**



**Fig 3. Proportion of children currently enrolled in school by fostering status and foster household**



Significant level computed with respect to the reference category "never been foster"  
 $p < 0.001$  (\*\*\*) ,  $0.01$  (\*\*) and  $0.05$  (\*)

With respect to the categorization of child fostering, the patterns changed slightly. Those who had never been fostered were still more likely to be in school and to be enrolled in post-primary school than their peers regardless of their sex and age at fostering (see figures 1-2). However, those who had been fostered by their grandparents' household were slightly more likely to be in school than all others, even those who had never been fostered – 71 per cent versus 68 per cent – although this result was not statistically significant, even at 10 per cent (see figure 3). Nevertheless, this tendency was reversed for post-primary attainment. Children who had been fostered by their grandparents were the least likely to attend post-primary school, even compared with those who had been fostered by other family members. This difference is significant at a level of 5 per cent. This finding seems to corroborate the assumption of Goody (1978) regarding the preference for collateral kin because of the educational aspect of fostering, mostly at advanced levels.

### *Multivariate analysis*

In table 2, we present the probit estimates of current school enrollment and access to post-primary education without considering the categorization of child fostering. Table A1 (see the Annex to the present document) shows the probit estimates for the models using the interaction variables. For the interpretation of the estimates, we computed the predicted probabilities, the relative risks of child fostering and all of the interaction variables in tables 3 and 4.

The negative association between having been fostered and education that was observed in the descriptive analysis above remained after controlling for the variables in the regressions, particularly in attaining post-primary school. Compared with those who had never been fostered, those who had been fostered in the past were substantially less likely to have attained post-primary school ( $\beta^*=-0.08$ ) (see table 2, column 3). The predicted probability (PP) of being enrolled in post-primary education for those who had been fostered was 0.81, compared with 0.89 for those who had never been fostered (see table 3, column 3). The difference in post-primary school attainment was significant at the 5 per cent level.

**Table 2: Marginal Effects of the Probit models on educational outcomes**

Dependent variables	Currently at school			Postprimary level		
	dF/dx	Std. Err.	P	dF/dx	Std. Err.	P
Have been fostered (yes=1)	-0.01	(0.056)		-0.08	(0.047)	*
Age	-0.02	(0.018)		0.04	(0.012)	***
Girl (yes=1)	0.10	(0.029)	***	-0.01	(0.017)	
Age at school enrollment	NA	NA		-0.37	(0.055)	†
<i>Education level of mother</i>						
No education (ref.)						
Primary	0.08	(0.045)		0.00	(0.026)	
Secondary or more	0.17	(0.043)	***	0.24	(0.364)	
Polygamy	-0.16	(0.043)	***	-0.03	(0.026)	
Family size	-0.05	(0.009)	***	-0.02	(0.005)	***
<i>Socioeconomic status</i>						
Poorer (ref.)						
Poor	0.03	(0.036)		0.02	(0.018)	
Not poor	0.18	(0.035)	***	0.03	(0.020)	
Formal neighborhood (yes=1/no=0)	0.15	(0.037)	***	0.05	(0.026)	*
Mossi (yes=1/no=0)	-0.11	(0.046)	*	-0.04	(0.017)	†
N	1372			950		

Sources: Calculated using data from the HDSS and Demtrend 2012  

$p < 0.001$  (\*\*\*),  $0.01$  (\*\*) and  $0.05$  (\*), and  $0.1$  (†)

**Table 3: Mean predicted probabilities (PP) and relative risks (RR) computed with Probit models (see table 2)**

Dependent variables	Currently in school		Post-primary level		Number of schooling years
	PP	RR	PP	RR	
Have been fostered					
No (ref.)	0.68	1	0.88	1	
Yes	0.67	0.96	0.82	0.92*	-0.41

Sources: Calculated using data from the HDSS and Demtrend 2012  
p<0.001 (\*\*\*), 0.01 (\*\*), 0.05 (\*), and 0.1 (†)

The separate regressions that were estimated for the interaction variables revealed differences in the likelihood of enrolling in school among those who had been fostered in the past (see tables 4

**Table 4. Mean predicted probabilities (PP) and relative risks (RR) computed with Probit models with interaction terms (see Table A1 in Annex)**

	Currently at school		Postprimary level	
	PP	RR	PP	RR
<b><i>Have been fostered</i></b>				
<b><i>Child fostering by sex</i></b>				
Not have been fostered (ref.)	0.68	1.00	0.89	1.00
Fostered boy	0.66	0.97	0.80	0.89†
Fostered girl	0.69	1.01	0.82	0.91
<b><i>Child fostering considering the foster household</i></b>				
Not have been fostered (ref.)	0.68	1	0.89	1
With mother's parents	0.76	1.12	0.80	0.90†
With mother's sibship	0.57	0.82	0.84	0.95
With other family's members	0.62	0.96	0.77	0.87
<b><i>Child fostering considering the age at fostering</i></b>				
Not have been fostered (ref.)	0.68	1	0.89	1
have been fostered in early childhood before 11 years old	0.71	1.05	0.83	0.93
have been fostered after 11	0.59	0.88	0.75	0.86*
<b><i>By the sex and the age at the time of fostering</i></b>				
Not have been fostered (ref.)	0.68	1	0.89	1
Boy fostered before 10	0.71	1.09	0.77	0.82†
Boy fostered after 10	0.69	0.94	0.82	0.96
Girl fostered before 10	0.70	1	0.88	1.01
Girl fosterer after 10	0.51	0.83†	0.67	0.72*
N	1372		950	

Degree of significance, comparison with reference group  
p<0.001 (\*\*\*), 0.01 (\*\*), 0.05 (\*), and 0.1 (†)

and A1 in the Annex). The effects of child fostering on access to schooling appears to be little differentiated by sex. However, with regard to the relationship of the mother with the head of the foster household, those who had been fostered by grandparents (see table 4, PP=0.76) were more likely to be currently enrolled compared with all other youths, including those who had never been fostered (PP=0.68). The same tendency appeared when comparing those who had been fostered in early childhood with their pairs: they are more likely to be enrolled than even those who had never been fostered (PP=0.71 vs. PP=0.68) (see table 4, column 1). However, these differences were not statistically significant (see table 4, column 1).

Interestingly, the predicted probabilities in table 4 show that having been fostered in the past negatively influences the probability of being enrolled in post-primary education. Compared with those who had never been fostered (who had a predicted probability of 0.89), fostered boys and girls had predicted probabilities of 0.80 and 0.82, respectively, although the difference is significant only for boys, at 10 per cent. As concerns the kinship of the children's mother with the foster household, those who had been fostered by grandparents have a higher probability of being enrolled but they are less likely to attend post-primary school compared with those who had never been fostered, at a level of 10 per cent (PP=0.80 versus PP=0.89). They were also less likely to have attained post-primary school in comparison with those who had been fostered by an uncle or aunt (PP=0.80 versus PP=0.84, but not significant). Those who had been fostered by other family members are the lowest in attaining the post-primary level of education (PP=0.77).

Moreover, the results corroborate the relevance of age at the time of fostering. The age at fostering did not affect significantly the probability of being currently enrolled. Nevertheless, it was correlated negatively and significantly with the probability of being enrolled in post-primary school. Indeed, each additional year at the age at fostering was associated with a decrease (significant at a level of 5 per cent) in the probability of attending post-primary school by 1 per cent (results not shown). In addition, living in a foster household during early childhood seems to be related significantly to attendance at a post-primary school. Indeed, those who have been fostered at ten years of age or older have a predicted probability of 0.75 compared with those who have been fostered before 10 and those who have never been fostered who have respectively a predicted probability of 0.83 and 0.89. Compared with the last group, have been fostered at ten year of age or older is statistically significant at a level of 5 per cent.

To add still more depth to this analysis, additional regressions were fitted combining the age at the time of fostering and the sex of the children (see tables A1 and 4). Our results reveal that the most disadvantaged children were girls who had been fostered after 10 years of age, with a negative marginal effect of -0.24, which is significant at a level of 5 per cent (see table A1). Compared with all other children, this group had the lowest probability of being enrolled in school (PP=0.51) and of attending post-primary school (PP=0.67) (see table 4). With respect to those who had never been fostered, one out of every four girls who had been fostered before 10 years was at risk of not being

currently enrolled in school, and among those who are currently in school, one out of every four is at risk of not attaining post-primary school. Additional tests showed that there is no difference in post-primary attendance between boys who fostered before and after 10 years old, whilst the difference between the girls fostered before and after 10 years is statistically significantly at 10 per cent (see table A2). Foster girls after 10 years old seem to fit the profile of additional or substitutable hands, which are needed due the demographic deficits related to the reduction in family size in urban areas (Ainsworth and Filmer 2006; Bledsoe and Isiugo-Abanihe 1989; Vreyer 1994). That is, they may spend their time in the foster household doing domestic chores, which substantially jeopardizes their educational outcomes compared with their peers. However, separate models were not fitted for children regarding family size because the number of children who had been fostered was too small.

#### *Other control variables*

In addition to the well-known positive effects of socioeconomic status and mother's education on educational outcomes, the results highlight other variables that should be considered important factors (see table 2). We note that polygamy was negatively associated with education. Those who were living in polygamous households were less likely to be enrolled in school ( $\beta^* = -0.16$ ). This association was found to be significant at a level of 1 per cent. However, it is less important and non-significant for post-primary level ( $\beta^* = -0.03$ )

Family size, measured as the number of children ever born, was also negatively and significantly associated with both educational outcomes, at 1 per cent. Each additional child ever born is correlated with a decline in the probability of being currently in school (5 per cent) and to attend post-primary school (2 per cent) (see table 2). This suggests that a reduced family size would facilitate youths' educational development. In addition, early schooling was also an important factor in children's educational development. Indeed, each year of delay in initiating schooling is correlated with a decrease of 5 per cent of the probability of being enrolled in post-primary school. This association was significant at a level of 1 per cent.

Finally, the neighborhood of residence, which encompasses the unequal spatial distribution of public services, including school infrastructure, influenced both education outcomes. Those who lived in informal areas had a marginal effect 0.15 on the probability of being enrolled in school and 0.05 for having attained post-primary school. Both marginal effects were significant at the levels of 0.1 per cent and 5 per cent, respectively. This finding suggests that, in addition to family socioeconomic status, the level of poverty of the residential community and the proximity of the school infrastructure play principal roles in terms of access to school and educational outcomes.

Although our findings show some clear and significant association between "have been fostered" and both "educational outcomes," particularly significant for attaining post-primary, we proceed to an assessment of the robustness and sensitivity of our estimates. As can be seen in table 5, the comparison of the two models reveals only slight differences. The signs and the significance levels

remain the same. This suggests that our results on the importance of other factors, such as gender, age at the first fostering, and the kinship ties of the mother with the head of the host household are robust to alternative assumptions on the measure of education.

**Table 5. Assessing the sensitivity of estimates to alternative assumptions about education indicator**

Dependent variables	Post-primary level			Schooling year		
	Coeff.	Std. Err.	P	Coeff.	Std. Err.	P
<i>By sex</i>						
Not have been fostered						
Foster boy	-0.52	(0.288)	†	-0.54	(0.428)	
Foster girl	-0.42	(0.306)		-0.46	(0.434)	
<i>By kinship</i>						
Not have been fostered						
With mother's parents	-0.49	(0.290)	†	-0.62	(0.475)	
With mother's sibship	-0.30	(0.401)		-0.36	(0.291)	
With other family's members	-0.63	(0.441)		-0.31	(0.861)	
<i>By the age at the time of fostering</i>						
Age (continue variable)	-0.05	(0.022)	*	-0.05	(0.029)	
<i>Age (codified)</i>						
Not have been fostered						
have been fostered in early childhood before 10 years old	-0.35	(0.272)		-0.54	(0.427)	
have been fostered after 10	-0.73	(0.330)	*	-0.41	(0.369)	
<i>By the sex and the age at the time of fostering</i>						
Not have been fostered (ref.)						
Boy fostered before 10	-0.65	(0.353)	†	-0.85	(0.549)	
Boy fostered after 10	-0.40	(0.527)		-0.20	(0.499)	
Girl fostered before 10	-0.07	(0.383)		-0.22	(0.630)	
Girl fosterer after 10	-1.03	(0.410)	*	-0.86	(0.464)	†

Sources: Calculated using data from the HDSS and Demtrend 2012

p<0.001 (\*\*\*), 0.01 (\*\*), 0.5 (\*), and (†)

All control variables are included

## 5. Conclusions

In this study, we explored the complexity of child fostering and assessed its effect on children's human capital in urban areas in Africa, particularly on the observation sites included in the Health and Demographic Surveillance System of Ouagadougou (HDSS). Contrary to previous empirical studies, which generally regarded fostered children as a homogeneous group, several dimensions in our analysis, such as the sex of the children, kinship with the foster household, and age at the time of the fostering, were included. We found that having been fostered in the past is negatively and substantially associated with being enrolled in post-primary school. However, it is important



to understand to what extent this negative influence remains when considering the heterogeneity underlying children's fostering.

Our findings show that child fostering does not affect the probability of currently attending school. However, those who have been fostered in the past show lower probabilities of attaining post-primary school than those who have never been fostered. This difference remains significant after controlling for the characteristics of the mother and the household.

The examination of child fostering elicits interesting patterns when comparing fostered children among themselves. First, having been fostered by grandparents or during early childhood seems to have delayed effects on educational outcomes. Indeed, youths fostered by grandparents tend to show higher current enrollment than their peers, but they attend post-primary school less frequently, except those who have been fostered by other family members. In sharp contrast, being fostered during late childhood appears to negatively impact educational outcomes, particularly for girls. Indeed, girls fostered at ten years of age or older are the most disadvantaged. Compared with all other children, they are least likely to be enrolled in school and to attend post-primary school.

In the context of Ouagadougou (the capital city of Burkina Faso), fertility has declined considerably over recent decades, and women's participation in economic activities has increased over time, whereas their involvement in domestic activities has decreased (Calvès and Schoumaker 2004; Charmes 2012; Lachaud et al. 2014; Mier Y Terán 1996). As this situation continues, there will be a growing demographic deficit and the need for substitutable hands to perform important domestic work. Due to the gendered division of work in sub-Saharan Africa, young foster girls have a different value insofar as they are regarded as household helpers dedicated to the performance of domestic chores (Ainsworth and Filmer 2006; Bledsoe and Isiugo-Abanihe 1989; Vreyer 1994).

Nonetheless, the results of this study must be interpreted carefully. One of the main limitations comes from the nature of the data. As mentioned in the methodology section, the data utilized in the study were not designed to make statistical inference to the entire Ouagadougou population; rather, the data focused on some special areas. However, the data covered some representativeness in terms of living conditions and the dynamic of population evolution of an African urban population. Moreover, data on fostering were collected only on children who were still living in the parental household. Thus, a disproportion of youths who have experienced past fostering instances might still be living in the parental household, compared with those who have never been fostered. In addition, data on the place of residency (rural vs. urban) of the host household and its characteristics were not collected. These facts limit our ability to generalize our results.

Another limitation is the small number of fostered children in our sample which led our methodological choice to focus the analysis on an individual perspective rather than a household perspective. Therefore, we had to compare children who had been fostered to their biological siblings in the same household who had not been fostered. This second perspective would allow us to control both observable and unobservable factors at the household level. Finally, the size of our

subsample of those who had been fostered is small, which might explain the statistical power limit of our analysis, mainly considering the interaction terms used. A subgroup analysis would have been even less powerful. Therefore, further research needs to address closely these aspects. Notwithstanding these limitations, our results – based on original data that considers residency trajectory of the youths – provide several directions for further studies. Our results clearly indicate that child fostering is shaping the distribution of education among children within a family. In addition, as family size in sub-Saharan countries continues to decline, especially in urban areas, the demographic imbalance of households will increase the need for fostering children and associated household rearrangements. It is doubtful whether policies in sub-Saharan Africa are seeking to understand, much less assist, adolescents who have been fostered in the past. It is important to develop useful measures to facilitate re-adaptation after having been fostered, particularly for female adolescents, who are the most disadvantaged group in child fostering.

## 6. References

- Ainsworth, Martha. (1996). "Economic aspects of child fostering in Cote d'Ivoire." *Res Popul Econ*, 8: 25-62.
- Ainsworth, M. and Deon Filmer. (2006). "Inequalities in children's schooling: AIDS, orphanhood, poverty, and gender." *World Development*, 34(6): 1099-1128.
- Akresh, Richard. (2004). "Adjusting Household Structure: School Enrollment Impacts of Child Fostering in Burkina Faso". *Economic Growth Center Discussion Working Paper No. 897*, [[http://www.econ.yale.edu/growth\\_pdf/cdp897.pdf](http://www.econ.yale.edu/growth_pdf/cdp897.pdf), Accessed 05/06/2014].
- Akresh, Richard. (2005). "Risk, Network Quality, and Family Structure: Child Fostering Decisions in Burkina Faso". *Economic Growth Center Discussion Working Paper No. 902*, [[http://www.econ.yale.edu/growth\\_pdf/cdp902.pdf](http://www.econ.yale.edu/growth_pdf/cdp902.pdf), Accessed 05/06/2014].
- Akresh, Richard. (2009a). "Flexibility of Household Structure." *Journal of Human Resources*, 44(4): 976-997.
- Akresh, Richard. (2009b). "Flexibility of Household Structure: Child Fostering Decisions in Burkina Faso." *Journal of Human Resources*, 44(4): 976-997.
- Alber, Erdmute. (2004). "Grandparents as foster-parents : transformations in foster relations between grandparents and grandchildren in northern Benin." *Grandparents and grandchildren Africa*: 28-46.
- Bachan, Lauren. (2014). "Anticipatory child fostering and household economic security in Malawi." *Demographic Research*, 30(40): 1157-1188.
- Bledsoe, C. and U. Isiugo-Abanihe. (1989). "Strategies of child-fostering among Mende grannies in Sierra Leone" (p. 443-475.) In *Reproduction and Social Organization in sub-Saharan Africa* R. J. Lesthaeghe (dir.). Berkley, CA: University of California Press.
- Bougma, M., Laure Pasquier-Doumer, Thomas K. Legrand and Jean-François Kobiané. (2014). "Fécondité et scolarisation à Ouagadougou : le rôle des réseaux familiaux." *Population*, 69(3): 433.
- Caldwell, John. (1997). "The impact of the African AIDS epidemic." *Health Transition Review*, 7 (supplement 2): 169-188.
- Calvès, A-E. and Bruno Schoumaker. (2004). "Deteriorating Economic Context and Changing Patterns of Youth Employment in Urban Burkina Faso: 1980-2000." *World Development*, 32(8): 1341-1354.
- Charmes, Jacques. (2012). "The Informal Economy Worldwide: Trends and Characteristics." *Margin: The Journal of Applied Economic Research*, 6(2): 103-132.
- Dahl, Bianca. (2009). "The "Failures of Culture": Christianity, Kinship, and Moral Discourses about Orphans during Botswana's AIDS Crisis." *Africa Today*, 56(1): 22-43.
- Eloundou-Enyegue, P. and David Shapiro. (2004). Buffering inequalities: The safety net of extended families in Cameroon: Ithaca, NY: Cornell Univ., Cornell Food and Nutrition Policy Program. (SAGA Working Paper).
- Goody, Esther N. (1978). "Delegation of parental roles in West Africa and the West Indies" (p. 447-484.) In *The extended family in Black societies* D. B. Shimkin, E. M. Shimkin and D. A. Frate (ed.): The Hague : Mouton.
- Goody, Esther N., éd. (1982). *Parenthood and Social Reproduction: Fostering and Occupational Roles in West Africa*. Cambridge: Cambridge University Press.
- Greene, William. (2004). "The behaviour of the maximum likelihood estimator of limited dependent variable models in the presence of fixed effects." *The Econometrics Journal*, 7(1).
- Howe, Laura Diane (2009). *The wealth index as a measure of socio-economic position*. PhD Dissertation, University of London, London, New England. Accessible par /z-wcorg/.
- Isiugo-Abanihe, Uche C. (1985). "Child Fostering in West Africa." *Population and Development Review*, 11(1): 53-73.
- Kielland, Anne. (1999). *Children's Work in Benin: Estimating the Magnitude of Exploitative Child Placement*. Washington D.C.: World Bank, Social Protector Sector

- Kobiané, Jean-François, éd. (2006). *Ménages et scolarisation des enfants au Burkina Faso : à la recherche des déterminants de la demande scolaire*. Louvain-la-Neuve Academia-Bruylant.
- Kobiané, J-F. and Boly Dramane. (2012). "Niveaux de scolarité et éléments d'analyse différentielle." *Ouaga Focus*, 3.
- Kobiané, Jean-François et al. (2013). Rapport final-DEMTREND, Tendances démographiques en Afrique subsaharienne. Burkina Faso, Ouagadougou: Système de surveillance démographique de Santé de Ouagadougou.
- Lachaud, James (2015). *Changements démographiques et inégalités éducatives à Ouagadougou*. PhD Dissertation, Université de Montréal, Québec, Canada.
- Lachaud, J., Thomas Legrand, Visseho Adjiwanou and Jean François Kobiané. (2014). "Family size and intra-family inequalities in education in Ouagadougou." *Demographic Research*, 31(49): 1455-1476.
- Lloyd, C-B. and Ann K. Blanc. (1996). "Children's Schooling in sub-Saharan Africa: The Role of Fathers, Mothers, and Others." *Population and Development Review*, 22(2): 265-298.
- Lloyd, C-B. and Sonalde Desai. (1992). "Children's living arrangements in developing countries." *Population Research and Policy Review*, 11(3): 193-216.
- Marcoux, Richard. (1998). "Entre l'école et la calebasse : sous-scolarisation des filles et mise au travail à Bamako" (p. 73-95.) In *L'école et les filles en Afrique. Scolarisation sous conditions* M.-F. Lange (dir.). Paris: Karthala.
- Mier Y Terán, Martha. (1996). "The implications of Mexico's fertility decline for women's participation in the labour force " *The Fertility Transition in Latin America* J. M. Guzmán, et al. (ed.). Oxford: Clarendon Press.
- Pilon, Marc. (2003). Confiage et scolarisation en Afrique de l'Ouest : Un état des connaissances. Dans UNESCO (dir.): UNESCO.
- Pilon, Marc. (2007). "La scolarisation au primaire à Ouagadougou: niveau de disparités" (p. 285.) In *La question éducative au Burkina Faso: Regards pluriels* F. Compaoré, et al. (ed.). Ouagadougou: CNRST.
- Rossier, Clémétine et al. (2012). "Profile: the Ouagadougou Health and Demographic Surveillance System." *International journal of epidemiology*, 41(3): 658-666.
- Unicef. (1999). Child Domestic Work. Dans I. Digest (dir.), *Innocenti Digest* (Vol. 5). Florence, Italy: International Child Development Center.
- Vreyer, Philippe De. (1994). "La demande d'éducation: déterminants économiques." *Afrique contemporaine*(172): 92-107.
- Vyas, S. and Lilani Kumaranayake. (2006). "Constructing socio-economic status indices: how to use principal components analysis." *Health Policy and Planning*, 21(6): 459-468.

Annex

**Table A1: Marginal Effects of Probit models with interaction terms on educational outcomes**

	Currently in school			Post-primary level		
	dF/dx	Std. Err.	P	dF/dx	Std. Err.	P
<i>By sex</i>						
Never been fostered (ref.)						
Fostered boy	-0.02	(0.082)		-0.09	(0.066)	*
Fostered girl	0.01	(0.073)		-0.07	(0.063)	
<i>By kinship</i>						
Never been fostered (ref.)						
By mother's parents	0.09	(0.069)		-0.08	(0.064)	*
By mother's siblings	-0.12	(0.097)		-0.04	(0.072)	
By other family members	-0.07	(0.132)		-0.12	(0.113)	
<i>By age at time of fostering</i>						
Age (in continue)	-0.01	(0.016)		-0.05	(0.022)	*
Never been fostered (ref.)						
Having been fostered before 10 years old	0.03	(0.064)		-0.05	(0.052)	
Having been fostered after 10 years old	-0.11	(0.095)		-0.14	(0.090)	*
<i>By sex and age at time of fostering</i>						
Never been fostered (ref.)						
Boy fostered before 10 years old	0.04	(0.088)		-0.65	(0.094)	†
Boy fostered after 10 years old	0.00	(0.145)		-0.40	(0.527)	
Girl fostered before 10 years old	0.02	(0.092)		-0.07	(0.383)	
Girl fostered after 10 years old	-0.20	(0.128)	†	-0.24	(0.138)	*

Sources: Calculated using data from the HDSS and Demtrend 2012

p<0.001 (\*\*\*), 0.01 (\*\*), 0.5 (\*), and (†)

All control variables are included

**Table A2: Statistical tests for model with interaction terms: Sex and time of fostering**

Difference	Currently at school			Postprimary level		
	coef.	Std. Err.	P	coef.	Std. Err.	P
A-B	0.10	0.506		0.25	0.617	
C-D	0.61	0.420		0.96	0.549	†

A = Boy fostered before 10 years old

B = Boy fostered after 10 years old

C = Girl fostered before 10 years old

D = Girl fostered after 10 years old

p<0.001 (\*\*\*), 0.01 (\*\*), 0.05 (\*), and 0.1 (†)