Child Fostering in Senegal

Simon Beck, Philippe De Vreyer, Sylvie Lambert, Karine Marazyan and Abla Safir

January 2012.

Executive Summary

In Sub-Saharan Africa, child fostering is a common practice whereby children are temporarily sent by their parents to live with a host family. In Senegal, nearly 10% of the children are currently fostered and 32% of the households either send or receive foster children. The widespread nature of this tradition, even today, calls for a better understanding of its motivation and its impact.

Child fostering has been viewed as a tradition with potentially negative outcomes for children. Some previous studies have nuanced this view, in particular in Burkina Faso. Using a new nationally representative survey of Senegal, the survey Pauvreté et Structure Familiale, that was collected in 2006 and 2007, this study aims at shedding light on the practice of fostering, in three ways. First, the study examines the characteristics of households and individuals involved in fostering to better understand the motivations to foster. Second, the study examines the impact of fostering on host households and on sending households: are children in households that receive foster children affected negatively? Lastly, the study examines the impact of fostering on the foster child. Because the survey is a household survey, it does not comprise Koranic schools. Hence, the paper does not examine fostering to these latter schools.

Education is a motivation for fostering. Households that do not have schooling infrastructure are more likely to send a child away, in particular boys. In the case of girls, there seems to be demand for them in households with a lot of domestic work, or in households that may have an increased need for help, after negative income shocks for instance. The differences in the motivation to foster and in the characteristics of sending or receiving households are however by no means clearly cut across the gender of the foster child and there is a lot of heterogeneity in the motivation to foster.

The paper examines three child outcomes: ever attending school, ever working and completing more than 28 hours of domestic work per week. The paper does not uncover any evidence pointing to particularly negative outcomes for foster children, be it compared to children in the households hosting them or in the households they left. Besides children that are formally fostered, the sample

comprises children whose parents are alive and do not live in the household. In many cases, their parents are former household members. The outcomes for these children, in terms of education, are similar to those of foster children. They differ in that they are less likely to work, both compared to host children and to foster children. Hence, there is some informational content in the fact that the household formally declared a given child as fostered. In addition, for children in host households, receiving a foster child does not seem to have an impact. The same is true of children in sending households.

To summarize, and bearing in mind that fostering to Koranic schools is not examined here, this study finds no evidence that child fostering should be forbidden or prevented at all cost. If one wants to pursue this goal nonetheless, one potential policy tool is to expand school infrastructure. Furthermore, once fostering takes place, there does not seem to be a need to specifically target policies to foster children, which would be very costly in terms of data collection. Instead, policies that target those households that may need a lot of domestic work or broader policies that ensure that domestic work does not come at the expense of schooling, should also be beneficial to foster children.

JEL Classification: D12, I21, O12.

Introduction

Child fostering is a practice whereby children are temporarily sent to live with a host family. The fostering period can vary from relatively short to very long (effectively a permanent move), but in any case, links with the biological family are kept. This practice is particularly widespread in Sub-Saharan Africa. According to our data (described below), nearly 10% of Senegalese children aged less than 15 years are currently fostered, 32% of households either send or receive foster children, and 14% of adults have been fostered in their childhood. Similar numbers ranging from 15 to 26% of households hosting a foster child are found in Burkina Faso, Cote d'Ivoire, Ghana, Niger and Mali, see Akresh (2009)) and Vandermeersch (2002). According to the Demographic and Health Survey report of 11 West African countries, the proportion of foster-children among children younger than 14 years old varies between 5.9 percent in Burkina Faso to 16.8 percent in Liberia and equals in average to 9.5 percent in the region. Fostering is often criticized by NGOs or international agencies, such as UNICEF (1999), who express worries that the well being of the children affected by fostering is at risk. Their worry is in part that child fostering is a disguised form of child labour, in particular with girls being said to be fostered while they are actually housemaids. More generally, the suspicion that altruism is stronger towards one's own biological children than towards any other children and the idea that the mother-child relationship is essential to children's well being are fueling these worries. Nevertheless, according to the actors and to numerous academic observers (Notermans (1999)), fostering is fulfilling several purposes. First, it allows children to move to a school when their parents live in places where no or few schooling infrastructures are available. In such a case, fostering is linked to enrolment decisions and is a way to invest in the human capital of that child. Second, it is also a way to adapt the dependency ratio of the household to the economic situation: in hard times, a child is sent to live somewhere else. Whether such a child is better off away from his/her parents in such situation is difficult to judge on a priori grounds. In addition, it is likely that host children are also affected by fostering. Whether this is a positive impact (through freeing them from domestic chores for example) or a negative one (through increased competition for scarce resources) is an open question. The objective of this paper is first to provide a thorough descriptive analysis of who fosters children out, who takes them in and why they do so. Second, the paper tackles the question of whether such practice is detrimental to children, looking separately at fostered children

themselves, host children and biological siblings left behind. Several identification strategies will be implemented.

Answering the question of the impact of fostering is intrinsically difficult for several reasons. First, there is a question of data availability. In general, data give information regarding the foster child in his host family and hardly anything is known about his family of origin. One of the first articles in the economic literature which focused on child fostering is Ainsworth (1992)), on Cote d'Ivoire. Starting from the idea that children are demanded for domestic tasks, she explains fostering by the difference between the optimal and the actual number of children in each household. She finds evidence in favour of such child labour explanation for fostering, and her results do not support the idea that fostering has human capital investment purposes. She works at the host household level, not at the child level and can therefore only infer something about the impact of fostering on children from her assessment of the fostering motives. However, Zimmermann's (2003) study of fostering reasons, based on the same model and with data from South Africa also describing host households, finds an effect on school enrolment, as the risk of not attending school is reduced by up to 22% for fostered children. The question of the endogenous selection of the fostered children, discussed below, is not dealt with. Serra (2008) builds a theoretical model to support the human capital investment reason, but provides no test of her predictions. Marazyan (2008), in the Indonesian context, goes further and explains the differences in human capital investment with sibling rivalry and old age support.

Second, even more complete data sets are confronted with the fundamental limit of what is observable. The main question that needs to be answered is that of what would have happened to the fostered child, if he had remained with his biological parents, a counterfactual situation that is never going to be observable. Hence, what should be the comparison point for the current situation of foster children is unclear. Unfortunately, comparing his trajectory with that of his siblings will not yield the answer to this question because the child who is selected to be sent away might be different from his siblings (selection issue). In addition, his departure affects the remaining children by freeing resources, and hence, even the trajectory of the siblings would have been different without fostering. We will come back at length on identification issues: these difficulties plague most existing papers on the issue and overcoming them is our main challenge. Akresh (2004) and Akresh (2009) collected data on fostering in Burkina Faso. His

data contain information on both sender and host households of all the fostered children of the sample. This enables him to compare the situation of each fostered child to that of his biological siblings who stayed behind. He concludes that, even if foster children's situation is less enviable than that of their host siblings, it is still better than what it would be without fostering, as inferred from the current situation of their non-fostered biological siblings. Akresh recognizes the identification issue raised by the fact that the biological parents are probably selecting the child with the best chance to succeed in the host household. The decision of which child the biological parents foster may be based on factors that are unobservable to the researcher but which clearly influence how well the child does in the host family. Indeed, the FAFO report (Tovo, Saito, Kielland, and Hounsounou (2010)) underlines that parents attribute different characteristics to children they foster out relative to those they keep: fostered children are deemed more obedient or more independent for example). To control for these unobserved factors, Akresh estimates a child fixed effects regression that measures the impact of fostering on that child's educational enrolment, conditional on the child's unobserved attributes. The main limitation of Akresh's work is the small size of his sample.

Another, maybe more fundamental, way to think about the issue, is to ask how the well-being of a child would have been improved if his parents had been given the means to keep him with them (by increasing the supply of schools or by giving social transfers when needed). This is akin to trying to value the parental presence in terms of children's well-being. It should be clear that this is out of the scope of this paper and would require large scale social experiment to be answered.

1 Data and context

1.1 The Survey

The data used in this paper come from an original survey entitled *Pauvreté et Structure Familiale*(hence: PSF) conducted in Senegal in 2006/2007. The PSF survey results from cooperation between a team of French researchers and the National Statistical Agency of Senegal.[1]. The survey is described in detail in De Vreyer, Lambert, Safir, and Sylla (2008).

It is a nationally representative survey conducted over 1800 households spread over 150 clusters drawn

[1]Momar Sylla and Matar Gueye of the Agence Nationale de la Statistique et de la Démographie of Sénégal (ANSD) on the one hand and Philippe De Vreyer (University of Paris-Dauphine and IRD-DIAL) Sylvie Lambert (PSE) and Abla Safir (now with the World Bank) designed the survey. The data collection was conducted by the ANSD thanks to the funding of the IDRC (International Development Research Center), INRA Paris and CEPREMAP

randomly from the census districts so as to insure a geographically representative sample. 1781 records can be exploited.

This survey covers the usual information on individual characteristics, as well as a detailed description of households structure and budgetary arrangements. Households were divided into subgroups (or cell) according to the following rule: the head of household and unaccompanied dependent members, such as his widowed parent or children whose mother do not live in the same household, are grouped together. Then, each wife and her children and, potentially any other dependant under her care, make a separate group. Finally, any other family nucleus such as a married child of the household head with his/her spouse and children also form separate groups. This decomposition emerged from field interviews as being the relevant way to split the households in groups.

In this paper, we focus on children aged less than 18, who are not married and haven't lost both of their parents (hereafter referred to as double orphans). We define as biological children those children for whom at least one parent lives in the household.[2]

Children can be separated in 3 main groups. The biggest group is made of biological children of one of the household's members. Those children belong to the cell of their mother if she resides in the household, in that of their father otherwise. A second group is made of explicitly fostered children. They are identified by the fact that the host household indicates explicitly that they are fostered and which household's member has prime responsibility for them. A last group of children is composed of children who have no parent in the household, have at least one living parent residing somewhere else but are not declared as fostered by the host household. For lack of a better word, we call them "other non-biological children" (or "other non-bio" for short). In what follows, unless otherwise mentioned, fostering refers to both kinds of children living without their parents. In general, papers dealing with fostering cannot distinguish these two groups of children since the fostering status is inferred from the absence of parents, despite them being alive. We show below that the distinction matters and that the fact that the host household signals them as fostered or not has an informational content that is relevant for their well-being. Fostered children and other non-bio are assigned to the cell of their prime care giver. For explicitly fostered children, they are in general fostered to a particular person, not to a household,

[2]We exclude individuals who are household head or cell head (or spouse of household head or cell head) and those who are visitors in the household

so that identification of the relevant cell is easy. For other non-bio, we rely on the declaration by the household of who is in charge, despite the fact that it does not seem to be result of an explicit contract with the family of origin of those children.

For all the children who are present in the household, information on their health status, education and work time is gathered. For non biological children, information on their parents is also collected, regarding in particular their location, their education and occupation.

In addition, the survey obtained information on all children of household's member, younger than 25 and residing somewhere else. For these children, their fostering status is collected as well as their current education and occupation. Information on their residence is obtained and details on the host household (when they reside with a household) are assembled. Finally the survey also provides with information regarding the schooling status of all children when fostering occurred.

Therefore, our data allow the study of fostering both from the point of view of receiving households and sending households. The comparison between fostered and biological children is made thanks to the first group while the second allows to compare fostered children to their biological siblings. Defining explicitly fostered children as children, usual resident, less than 18 years old, whose parents are not present in the household but at least one of them is alive and who are clearly identified as a fostered child either by the head, or by his care-giver (his cell's head) or according to the motive underlying his presence in the household, we count 575 such children in the sample. There are also 281 children less than 18 years old who are not biological children of any member of the household, and who are not fostered children according to the above definition. [3] They constitute the group of other non-biological children (or other hosted children). Counting the number of children fostered out (aged less than 18 and declared as fostered out by their biological parent), we find 369 of them. [4]

The sample also includes 3897 children who live with at least one of their parent in households not involved in fostering, 1090 host siblings, 771 biological siblings left behind and 227 biological children of members of households which both send and receive children.

[3] We exclude sons and daughters in law and domestics.

[4] We include as fostered out children who are not declared fostered out but are not married and are currently living away for the households for the following reasons: education, difficult economic situation in the origin household, divorce of the parents, death or illness of one of the parent, provide help to host household.

Table 1: **Sample composition**

Status	**Freq.**	**Percent**	**Perc. among Bio.**
Biol. child.	5964	87.4	100
Biol. Child. not involved in fostering	3897	57.1	65.3
Biol. Child. host	1074	15.7	18.1
Biol. Child. left behind	769	11.3	12.9
Biol. Child. both host and left behind	224	3.3	3.8
fostered child	575	8.4	.
other non-bio	281	4.1	.
fostered out	369		

Note: The column "Percent" gives the percentage of a given category among all children below 18, not married and not orphans who live in the household. The last column regards only biological children and gives the share of each group of biological children among all those who live in the household with at least one of their parent. The category of fostered out child cannot easily be compared to any of these reference populations since by definition they do not live in the household.

1.2 Descriptive statistics on children and households of origin

Descriptive statistics of biological, fostered in, fostered out and other non-biological children are shown in tables 2 to 17. In table 2, the children average current age, age at fostering and sex are presented. In theory, the children fostered in and those fostered out should statistically be identical since it is the same group seen from two different positions : origin or destination. Nevertheless, it appears that if both groups have the same mean age (around 11), there are 55% of girls among the fostered in while girls account for only 44% of the fostered out. These two numbers can be partly reconciled by taking into account the fact that in our sample of fostered-in children, we miss most of the children fostered to religious guides because the survey focuses on households and we have no observation on people living in religious Daraa (koranic boarding schools). On the other hand, children fostered out are counted wherever they are fostered. Since about 19% of the boys are fostered out to a religious guide, while nearly none of the girls is, when excluding those, the boys/girls ratio among the fostered out reaches 50%, closer to that observed for the fostered in.

It is interesting to note that the average age at fostering is found to be much lower for other non-biological children than for fostered-in ones. This results from the fact that a high proportion (64%) of other non-biological children in fact have lived in the host household since their birth, while this is the case for only slightly more than a third of the fostered children (see table 3). As a result, other

Table 2: **Child sex, age and age at fostering - by child's status**

Status	**Boys** % (N)	**Child's age** mean (N)	**Fostering age** mean (N)	**rural** % (N)
Biol. child	48.8 (5964)	8 (5964)	.	54.1 (5964)
Fostered in mean	54.9 (575)	10.5 (575)	5.3 (518)	51.5 (575)
Other non-bio mean	46.6 (281)	11.3 (281)	2.9 (232)	39.5 (281)
Fostered out mean	44.5 (380)	11 (380)	7.5 (256)	46.9 (360)

non-bio have on average be present in the household for more time than the fostered in (7.5 years vs. about 6 years). Nevertheless, when looking only at those who are not born in the household, the result is reversed with other non-bio having been present for about 3 years against 4.5 for fostered children. In other words, other non-bio are more often born in the household but when it is not the case, they arrive later in the household than children fostered in. This difference between foster and other non-bio children is to be kept in mind since it throws light on a number of results presented later on.

Table 3: **Duration of stay in the household, in months**

	fostered in		other non-bio		
	N		N		p-value (different mean)
time of presence in months	556	74.5	275	90.1	0.01
percentage born in the hh	575	37	280	64	0.00
when not born in the hh: time of presence in months	352	54.8	104	36.8	0.00

Tables 4 and 5 give information on the main care giver: 35% of other non-bio children are grand-children of the household head, whereas it is the case for only 25% fostered-in children and 17% of biological ones. A large proportion of fostered children are therefore in the care of their grand-parents. However this is far from being the whole story. A little less than one fourth of the fostered children are living in their uncle household, as nephew and nieces of the household head represent 22% and 23% of fostered-in and other non-bio children respectively, against only 7% for biological children. Also to be mentioned is the fact that 18% of the fostered-in and 12% of the other non-biological children have no link with the household head. If the existence and intensity of a biological link impacts the attention given by the household head to the fostered child, then one can expect these differences to play a role in the well-being of non biological children who live in Senegalese households.

Table 4: **Child's relation to head and position in household - by child's status - part 1**

Status	**N**	**Biological child**	**Grand child**	**Sibling**	**Nephew/niece**	**Cousin**
		%	%	%	%	%
Biol. child mean	5963	68.9	16.7	1.6	7.2	0.1
Fostered in mean	574	0	25.4	0.3	22	2.1
Other child mean	281	0	35.2	5.7	23.1	2.5
Fostered out mean	380	60.5	6.1	0	2.1	0

Table 5: **Child's relation to head and position in household - by child's status - part 2**

Status	**N**	**Bro./sist. in law**	**Other parent**	**No link**	**Unknown**	**Mb. of head's cell**
		%	%	%	%	%
Biol. child mean	5963	0	4.2	1.3	0	12.1
Fostered in mean	574	1.7	15.3	17.9	15.2	54.9
Other child mean	281	3.6	14.9	12.1	2.8	58.4
Fostered out mean	380	0	3.2	6.3	21.8	31.8

Looking now at the fostered-out, it appears that more than 60% are children of the household head. Thus fostered-out children do not appear to be mainly fostered for reasons linked to a relative disadvantage of their parent within their own household. For instance, one could have imagined that a women who lives in the household of her brother, feels some pressure to have her children living elsewhere. This does not seem to be part of the story. The last column of table 5 shows the proportion of children that live in the household head's cell. Only 12% of biological children live in that cell, which is not surprising since, the household head is most often a man and since as long as their mother is present in the household children are affected to her cell and not that of their father. The majority of fostered-in and other non-biological children belong to the head's cell, which means that either they have been fostered explicitly to this person or that he/she took responsibility for them. As the household head is likely to have a better control over the household resources, belonging to the head's cell is not neutral in terms of well-being, and for this reason this result might have been expected if biological parents of fostered children have their say in the choice of who takes care of them in the host household.

This description can be complemented with simple probit regressions showing the correlates to the probability of being a fostered in child rather than a biological child (tables 6 and 7).[5] Only few exogenous

[5]The number of observations is smaller than what is indicated above due to missing values for some variables

Table 6: **Probability of being a fostered in child (resp. other non-bio) vs. biological child**

	(1)	(2)
VARIABLES	fostered	other non-bio
female	0.016**	-0.0067
	(0.0077)	(0.0061)
age	0.00586***	.0047***
	(0.0008)	(0.0006)
Birth order	-0.0132***	-.0061***
(0.0020)	(0.0013)	
Constant	0.0674***	0.0268***
	(0.0115)	(0.0074)
Observations	6392	6101
Pseudo R-squared	0.0249	0.0192

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Note: Linear probability model.

characteristics can be used. it appears that fostered children are more likely to be girls (given that we miss boys fostered out to religious guides), they are younger (controlling for birth order) and more likely to be among the elder children of their own sibship. Apart from the gender correlation, the same characteristics are found for other non-bio, but attenuated. When comparing foster children to their own bio siblings, no gender difference appears, and older children are more likely to be fostered out.

What can we say about the parents who foster their children ? The survey helps answering this question, by using information on the household characteristics of fostered out children and on the parents of fostered-in and other non-biological children. Table 8 shows the children's father occupation according to status. About one fifth (21%) of biological and fostered out have a father who is a farmer. This proportion raises to 28% for other non-biological and 40% for fostered-in children. This is a large difference, which might be partly the result of missing values for this variable. The other possible explanation is that children fostered to religious guides are much less likely to come from farmer households than others. Though not impossible, this seems unlikely and this issue remains to be settled.

Looking now at the reasons reported for fostering, we see in table 9 that girls are much more likely

Table 7: **Probability of being fostered out**

VARIABLES	fostered out
female	-0.00867
	(0.00774)
age	0.00440***
	(0.00066)
Constant	0.01269**
	(0.00516)
Observations	6339
Pseudo R-squared	0.0190

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Note: Linear probability model.

Table 8: **Child's father occupation - by child's status**

	farmer %		self-employed %		other active %		inactive %		N	
	urbain	rural	urbain	rural	urbain	rural	urbain	rural	urbain	rural
Biol child	5.39	34.52	39.65	25.91	42.36	23.83	12.60	15.74	2318	2,833
fostered in	27.53	51.70	36.44	29.81	29.15	13.58	6.88	4.91	247	265
other non bio	23.61	35.23	41.67	36.36	26.39	20.45	8.33	7.95	144	88
fostered out	14.91	29.11	49.69	30.38	22.36	23.42	13.04	17.09	161	158

to be fostered to help their host household than boys (20.5% against 5.1%).[6] This is hardly surprising since girls are much more involved in domestic tasks than boys (see infra). However, 17% of girls and 25.6% of boys are fostered in for (formal) schooling reasons. It is also interesting to note that about 18% of girls and 21% of boys are fostered due to parental problems (sickness, death or divorce). As a result, the proportion of children that have both of their parents alive is much lower among fostered-in and other non-biological than among biological children (around 70% against 92% - table 10). For some children fostering then appears as a mean to help in taking care of them once one of their parent is deceased. In addition, it can also be noticed that among foster children, the probability that at least one parent migrated abroad is much higher than in the general population, and it is even more true when the mother is the migrant and for boys. Among children whose mother migrated, 50% are fostered (vs. about 6.3% of fostered children among those whose mother lives in Senegal). See table 14.

[6] This table is restricted to fostered-in children, since data is only partial for other non biological and fostered-out children.

Table 9: **Reasons for fostering - by child's sex - fostered-in only**

Sex	**N**	**Help**	**Prob. w. parents**	**Pub. School**	**K. School**	**Other**
	%	%	%	%	%	
Male	215	5.1	21.4	25.6	4.2	43.7
Female	263	20.5	17.9	17.5	1.1	43

Table 10: **Number of living parents - by child's status**

Status	**N**	**One parent alive**	**Both parents alive**
		%	%
Biol. child	5964	6.4	91.7
Fostered in	574	31.5	68.5
Other child	281	29.2	70.8

Table 11: **fostering and parental international migration**

Status	**N**	**father migrated**	**mother migrated**	**Both parents migrated**
		%	%	%
Biol. child	5969	0.8	0.1	0
Biol. boys	3057	0.8	0.1	0
Biol. girls	2912	0.9	0.2	0
Fostered in	555	9	7.4	4.9
Fostered in boys	253	11.1	9.1	7.1
Fostered in girls	302	7.3	5.9	3
Other non-bio	272	7	5.9	2.9
Other non-bio boys	146	8.2	8.9	4.1
Other non-bio girls	126	5.5	2.4	1.6

It is also worth noting that in aggregate, there is a peak in the number of children fostered in 2005 relative to those fostered in 2003, 2004 or 2006 (see table 12). Indeed, there are about 30% more children fostered in that year than the previous or following years. This could very well correspond to the fact that the invasion of desert locust that devastated the crops in the northern half of the country during the autumn of 2004. Nevertheless, since we do not know precisely from which region fostered children come from, it is impossible to check precisely whether indeed, leaving in the northern part of the country increased significantly the probability of being fostered that year relative to other regions.

Table 12: **Number of children fostered in by year of arrival**

Year of fostering	Nb of fostered children
2001	49
2002	39
2003	39
2004	48
2005	**65**
2006	45
2007	44

Finally, a last descriptive note is needed to underline the fact that fostered children are more often than biological children homonymous to their care giver. This could be the case simply if families systematically avoided to give the name of the same sex parent to their child, but this doesn't appear to be the case. Informal field discussion suggest both that it is difficult to refuse to host a homonymous child and also that alliance strategies dictate the name given to a new born child. In such a case, it is only natural for this child to spend some of his upbringing in the care of the person he was named after.

Table 13: **Homonymy**

		same name than cell's head	same name than hh head.
	N	%	%
Biol Children	5970	6,1	1,7
Fostered	575	10,3	4,7
other non-bio	281	8,6	4,6

1.3 Children's outcomes

Descriptive statistics can give some insights on the relative welfare of children according to their fostering status, though no causal relationship can be inferred from this descriptive analysis. In tables 14 and 15, we look at the proportion of children that have ever been or are going to school (table 14) and that are doing some domestic chores or work on the labour market (table 15). In these tables, the sample is restricted to children aged 6 years or over. Results show that fostered-in and out children have a slightly higher probability of going to school (either now or in the past) than other children, either biological or not. When education is restricted to formal schooling, the proportion of fostered-out that have been

or are currently going to public school drops dramatically compared to fostered-in children. This is easily explained by the already noted asymmetry between fostered-in and fostered-out, i.e. that children fostered in Daraa are not directly observed. Looking now at work participation, our data suggest that fostered-in children are more likely to be involved in domestic work than biological or other non-biological children. They are also more likely to be active on the labour market. In tables 16 and 17 we split our sample by sex. We see that, as might have been expected, girls are more likely to get involved in domestic chores and boys in labour market activities. This is true for all categories of children. However, fostered-in girls have a higher probability of doing more than 28 hours a week of domestic work than any other kind of children, whereas fostered-in and, to a lesser extent, fostered-out boys are more likely to be active on the labour market than others.

Table 14: **Child's education - by child's status**

Status	**N**	**Went to K.sch. only**	**Went to Pub. sch.**	**Is at K.sch. only**	**Is at Pub.sch.**
		%	%	%	%
Biol. child	3630	12.5	62.7	7	53.1
Fostered in	470	13.8	65.1	5.5	52.8
Other child	241	8.3	64.7	3.3	54.4
Fostered out	331	26.3	51.7	12.7	44.1

Table 15: **Child's involvement in domestic and labour market work**

Status	**N**	**No D.W.**	**D.W. $<$ 27 hrs/wk**	**D.W. $>=$ 28 hrs/wk**	**N**	**Labour market wrk**
		%	%	%		%
Biol. child	2769	30.4	58.3	11.2	3486	14.1
Fostered in	385	24.4	60	15.6	453	17.2
Other child	181	32	57.5	10.5	221	11.8
Fostered out	0	.	.	.	369	17.9

Note the relative similitude in these descriptive statistics between other non-bio and biological children, that might be related to the high proportion of other non-bio being born in the household.

Table 16: **Boys' involvement in domestic and labour market work**

Status	**N**	**No D.W.** %	**D.W. < 27 hrs/wk** %	**D.W. >= 28 hrs/wk** %	**N**	**Labour market wrk** %
Biol. child	1347	42.3	51.3	6.4	1778	17.3
Fostered in	149	40.3	53	6.7	191	23.6
Other child	88	44.3	51.1	4.5	114	15.8
Fostered out	0	.	.	.	207	20.3

Table 17: **Girls' involvement in domestic and labour market work**

Status	**N**	**No D.W.** %	**D.W. < 27 hrs/wk** %	**D.W. >= 28 hrs/wk** %	**N**	**Labour market wrk** %
Biol. child	1422	19.2	65	15.8	1708	10.8
Fostered in	236	14.4	64.4	21.2	262	12.6
Other child	93	20.4	63.4	16.1	107	7.5
Fostered out	0	.	.	.	162	14.8

2 Who fosters children in or out?

Households may receive foster children, send foster children out, do both or neither. In the sample, 17% of the households receive a foster child, 11% foster a child out and 3% (i.e. 56 households) do both: they send one or several children away and host at least one child (see Table 18). Among households receiving a foster child (whether they also send one out or not), a third receive 2 or more children.

If other non-bio are included, the proportion of households who receive a child rises to nearly 24% and only 61% of the households are not involved at all in any children exchange practice. Here nearly 40% of the households who host a child host more than one. From simple descriptive statistics, it appears clearly that, as one would expect, households involved in fostering, either way, are bigger and more likely to have a polygamous head than households who are not involved in fostering. Indeed polygamy increases the number of family related households who might be either a source or a destination for foster children.

A multinomial analysis gives a clear description of the observable differences between households who have different involvement in fostering. This confirms that those who receive or send a child are not a random selection among households. This endogenous selection will be an issue when trying to evaluate the impact of fostering. Control variables include the size of the household and the gender composition

Table 18: **Involvement in fostering, at the household level**

Type of involvement	Freq.	Percent	mean HH size	Polygamous[1] households	Freq. including other non-bio	Perc. incl. other non-bio
HH not involved in fostering	1,208	67.83%	8.1	11.8%	1,096	61.54%
HH receiving a foster child	311	17.46%	10.8	18.2%	423	23.75%
HH sending a child away	206	11.57%	10.4	19.1%	183	10.27%
HH receiving and sending	56	3.14%	13.8	26.5%	79	4.44%
Total	1,781	100%	9.0	14.7%	1,781	100%

Note: "Polygamous" is coded 1 when the household head is polygamous and at least two of his wives cohabit in the household. The numbers presented here therefore do not reflect the rate of polygamous marriages in the whole population.

of the set of children, location of residence (rural or Dakar - other cities constitute the reference group), distance to school[7], characteristics of the household head (age, gender, education, polygamy status[8], and ethnic group). Finally, as control for the income level of the household we use a measure of consumption. A natural way to do this is to consider per capita expenditures, but the number of members depends of the fostering decision. Mechanically, if a household host a foster children, it becomes one member larger, which decreases the level of per capita expenditures, inducing a negative correlation between per capita expenditures and the probability to foster a child in. It is indeed what we find if we use this variable. Ideally, we would like to have per capita expenditures before any fostering in or out took place, but we cannot access this information with these cross-sectional data. In the results presented below we use a variable that measures the expenditures per income earner in the household. The idea is that the fostered children are unlikely to be income earners and that a household that reaches its level of expenditures thanks to one wage is better of than the one that reaches the same level with multiple very small income sources. Table 19 shows the estimation in the case where other non-bio are excluded so that only children formally fostered are considered. Including the other non-bio doesn't change the qualitative conclusion that can be drawn here, although point estimates are generally slightly higher. The estimation confirms that bigger households are more likely to engage in fostering practices and that lack of schooling infrastructure is positively correlated with the fostering out of at least one child (both the rural dummy and the measures of distance to school are significantly positively correlated with out-

[7]Distance to school is measured by the time it takes to reach the nearest school using the usual transportation means. This information is available for 1734 households. Note that this measure is only an imperfect measure of availability of schooling since even when a school is present nearby, it might not offer all the necessary education level. Often, rural school offer teaching only for the first few levels of primary schooling. Hence we might overestimate the availability of schools, and therefore underestimates the role of the lack of adequate local supply of education in prompting fostering.

[8]A household is coded as polygynous in this analysis when the head has at least 2 co-residing wives

fostering). Interestingly, the fact that the household had a set of children with an unbalanced gender composition before fostering (either more boys or more girls) is positively correlated with the probability to send a child out. The surprising feature is that the fact that the household witnessed a negative shock in the past 5 years is positively correlated with the probability to receive a child. In addition, households headed by a polygamous man who cohabits with several spouses are more likely to receive a child. When considering separately the probability to receive or send more boys than girls (table 20) and that to receive or send more girls than boys (table 21), some interesting results come out. First, being a polygamous household is positively correlated to receiving boys but not girls. Richer households (with bigger earners and living in Dakar) are less likely to receive boys. Positive shocks are positively correlated to receiving boys while the probability of receiving a girl increases with negative shocks. A natural interpretation of this difference is that girls are more often send to a household who needs some help. Finally, it is also interesting to note that the correlation between the imbalance in the gender composition of the family before fostering tends to be corrected by children moving out: households with more boys are more likely to send a boy out while those with more girl send their girls away. In sum, this analysis shows than fostering in is associated with large and polygamous households, in particular when it comes to boys, and fostering out tends to reduce imbalance in the gender composition of the set of children. The availability of school infrastructure appears to be correlated with fostering decision. Finally, shocks seem to matter, although the way they do is sometimes surprising. These various results are consistent with the fact that foster children are not an homogenous category: some are fostered for schooling reasons, explaining the role of schooling infrastructure, some are in order to face shocks and others play a social role. What comes out clearly though is that households who participate in fostering are not a random subset of households. This will have to be taken into account when assessing the impact of fostering on the children.

Table 19: **Probability of sending, receiving or no fostering**

VARIABLES	(1) Receiving_HH	(2) Sending_HH	(3) Receiving_and_Sending
Number of members before fostering	0.0156	0.0751***	0.0830***
	(0.0141)	(0.0122)	(0.0144)
More boys among children before fostering	0.00146	0.481***	0.124
	(0.158)	(0.179)	(0.230)
More girls among children before fostering	-0.0613	0.321*	-0.0687
	(0.159)	(0.184)	(0.231)
HH per earner consumption (log)	-0.0810	0.0659	0.179**
	(0.0606)	(0.0700)	(0.0853)
HH in Dakar	-0.260*	0.222	0.101
	(0.153)	(0.180)	(0.248)
Rural HH	0.0351	0.416**	0.347
	(0.169)	(0.201)	(0.246)
Primary school lt 30 min	0.956***	1.291***	0.459
	(0.262)	(0.365)	(0.359)
Primary school lt 60 min	0.492	1.093***	0.451
	(0.342)	(0.416)	(0.463)
Polygamous household	0.378**	-0.118	0.168
	(0.182)	(0.211)	(0.229)
Positive shock	0.256*	-0.0465	0.347*
	(0.140)	(0.155)	(0.210)
Negative shock	0.314**	0.137	0.146
	(0.157)	(0.177)	(0.230)
Constant	-2.255**	-4.807***	-6.149***
	(0.962)	(1.119)	(1.273)
Observations	1,455	1,455	1,455

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note : Additional controls include household's head gender, age, ethnic group and schooling. Full set of result is available upon request to the authors. The consumption variable used here excludes rent expenditure. Polygamous household is a dummy variable equals to one if the household head is engaged in a polygamous union and cohabits with at least 2 spouses.

Table 20: **Probability of sending, receiving or no fostering - more boys than girls**

VARIABLES	(1) More_Boys_Receiving_HH	(2) More_Boys_Sending_HH
Number of members before fostering	0.0166	0.0567***
	(0.0168)	(0.0134)
More boys among children before fostering	-0.130	0.896***
	(0.195)	(0.221)
More girls among children before fostering	-0.286	0.0614
	(0.203)	(0.251)
HH per earner consumption (log)	-0.164**	-0.0202
	(0.0770)	(0.0864)
HH in Dakar	-0.499***	0.193
	(0.189)	(0.228)
Rural HH	-0.150	0.348
	(0.213)	(0.238)
Primary school lt 30 min	0.931***	1.591***
	(0.345)	(0.531)
Primary school lt 60 min	0.610	1.565***
	(0.432)	(0.577)
Polygamous household	0.495**	-0.200
	(0.221)	(0.248)
Positive shock	0.362**	0.0563
	(0.180)	(0.194)
Negative shock	0.129	0.0149
	(0.196)	(0.212)
Constant	-1.217	-3.814***
	(1.196)	(1.354)
Observations	1,217	1,217

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note : Additional controls include household's head gender, age, ethnic group and schooling.Full set of result is available upon request to the authors. The consumption variable used here excludes rent expenditure. Polygamous household is a dummy variable equals to one if the household head is engaged in a polygamous union and cohabits with at least 2 spouses.

Table 21: **Probability of sending, receiving or no fostering - more girls than boys**

VARIABLES	(1) More_Girls_Receiving_HH	(2) More_Girls_Sending_HH
Number of members before fostering	0.0179	0.0837***
	(0.0163)	(0.0154)
More boys among children before fostering	0.0273	-0.344
	(0.191)	(0.244)
More girls among children before fostering	0.153	0.366*
	(0.185)	(0.220)
HH per earner consumption (log)	0.00536	0.205**
	(0.0700)	(0.0837)
Primary school lt 30 min	0.998***	0.835*
	(0.329)	(0.462)
Primary school lt 60 min	0.468	0.532
	(0.426)	(0.538)
Head went to public school	0.246	0.174
	(0.196)	(0.256)
Head went to koranic school	0.0970	0.519**
	(0.189)	(0.229)
Polygamous household	0.294	0.114
	(0.211)	(0.280)
Positive shock	0.164	-0.183
	(0.165)	(0.187)
Negative shock	0.381**	0.244
	(0.184)	(0.214)
Constant	-4.261***	-7.006***
	(1.106)	(1.361)
Observations	1,225	1,225

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note : Additional controls include household's head gender, age and ethnic group, as well as Dakar and rural dummies. Full set of result is available upon request to the authors. The consumption variable used here excludes rent expenditure. Polygamous household is a dummy variable equals to one if the household head is engaged in a polygamous union and cohabits with at least 2 spouses.

In a household, children fostered in and out are associated to a particular cell. In total, the 1781 households are composed of 4375 cells. Nearly 65% of those cells belong to households who do not participate in any fostering. Among the rest 40% are directly involved in fostering while 60% are not, but belong to households where some other cell participate to fostering.

Restricting the analysis to households who receive a child, we run a linear probability model of the probability to be the cell of the care giver (see table 22), introducing household fixed effects. It comes out very clearly that for the most part, foster children are fostered to the household head or to

Table 22: **Probability of being the receiving cell in a receiving household**

VARIABLES	(1) Being the receiving cell formally fostered only	(2) Being the receiving cell Fostered + other non-bio
cell head=female	-1.539*	-1.774***
	(0.825)	(0.677)
cell head's age	-0.00991	0.00193
	(0.0161)	(0.0129)
cell head's age*cell head=female	0.0707***	0.0537***
	(0.0170)	(0.0136)
cell head= hh head	4.307***	3.447***
	(0.458)	(0.335)
cell head= hh head's spouse	1.137**	1.796***
	(0.467)	(0.394)
cell level consump per earner	0.0343	0.873***
	(0.201)	(0.170)
cell head went in Pub. school	-1.142***	-1.055***
	(0.389)	(0.324)
cell head went in Koranic school	-1.493***	-0.560*
	(0.412)	(0.336)
Cell size, before fostering	0.0390	-0.107**
	(0.0563)	(0.0504)
more boys than girls 0-18 (cell)	-0.0601	-0.454*
	(0.305)	(0.275)
more girls than boys 0-18 (cell)g	0.362	0.385
	(0.292)	(0.261)
Observations	1,305	1,607
Number of households	119	144

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note : This regression controls for household's fixed-effect. The reading is therefore the following: the cell of the household head is more likely to be the cell of the care giver than other cells in the household. The "More boys than girls 0-18" reflects the gender composition of children below age 18 in the cell before fostering took place.

a spouse of the head, and not to the most educated cell head (which might just reflect on the fact that old household heads are less likely to have ever been to school than other cells' heads in a household). When restricting the sample to household who formally foster children (first column of table 22). The choice of the receiving cell seems to take no consideration for the number of members of the cell, for the gender composition of the set of biological children in this particular cell or for the income earned by its members. This results differ when considering the wider definition of fostering, including household who receive other non-bio (second column). These other non-bio seem to be more likely to be attached to a richer cell, but also to a smaller one, and one that doesn't have more boys than girls to start with.

3 Assessing the relative outcomes of fostered children

The two main outcomes one wants to examine are related to education and labour (whether domestic or not). Regarding education, a crude indicator is simply the probability to have ever attended school. Another natural indicator is current attendance, but unfortunately this variable is not properly observed for children at the time of fostering, so we decided not to work with it. Admittedly, there is much more to education than entry into school, but if a difference appears at this level, then it is likely to really matter. When it comes to labour, we can observe several outcomes of interest. The first one is whether the child is currently engaged in economic work. In order to account for the fact that children's labour participation might not be a permanent state, we also look at whether the child ever participated to economic work in his life. Finally we also look at domestic work by considering whether a given child spends more than 28 hours a week completing household chores.

3.1 Econometric issues in assessing the impact of fostering on children

Evaluating the impact of fostering on children is made difficult, first, by a double selection process, and second by the fact that fostering is likely to impact all the children belonging to the households involved. First, one cannot make the assumption that households involved in fostering and fostered children are chosen randomly. Host households and households that foster out their children are likely to have unobserved characteristics, that increase the probability that they get involved in fostering and that could have an impact on the children's outcomes. Similarly fostered children might be chosen based on unobserved characteristics that could also have such an impact. For instance, it could be that children fostered for education purposes have higher than average cognitive abilities. As mentioned earlier, this is an argument that families give to justify the fostering of one particular child among their offspring (Tovo et al. (2010)). Moreover, the unobserved characteristics of the host household and of the child could be correlated. For instance, children with high cognitive capacities could be sent to households that give a high value to educative achievement. The main challenge when trying to evaluate the causal impact of fostering is to avoid the biases induced by such endogenous selection. Second, it is also not possible to assume on a priori grounds that biological non fostered children, either in the host or the origin household, are not impacted by fostering, and comparing fostered children with them might lead

to biased estimates of fostering impacts on the fostered themselves.

Five groups of children can be distinguished when evaluating the impact of fostering, either on fostered children themselves, or on other children in host or origin households:

- Fostered in children (FI), either explicitly or not; - Fostered out children (FO); - Biological children of host households (BHH); - Non fostered biological children of sending household (BSH); - Children of households not involved in fostering (BNI).

As noted earlier, statistically, fostered in and fostered out children should be the same, but from an observational point of view they differ in that fostered-in children are observed in their host household while information on fostered-out children is collected in their household of origin. Evaluating the impact of fostering on fostered children amounts to comparing FI or FO children with other non fostered children. Children fostered in can be compared to their host siblings and fostered out children to their biological siblings. It might seem the most natural way to proceed. However, even in the absence of endogenous selection, such a comparison will lead to biased estimates if non fostered children are affected by fostering. Analyzing the impact of fostering on non fostered children, whether they host a fostered in or are left behind a child fostered out is clearly of interest per se, but it will also help evaluating the likelihood of such a bias

3.2 Impact of fostering on non fostered children

Maybe the most natural way to proceed is to compare biological children of host (BHH) and sending (BSH) households with those of households not involved in fostering (BNI). One difficulty with this strategy is that BHH and BSH children might systematically differ from BNI children, since, as seen with descriptive statistics, households involved in fostering differ systematically from others. A better strategy might be to look at what happens inside households involved in fostering, using the fact that host children are not all at the same stage in their life cycle when the fostered child gets in. If the arrival of the foster impacts available resources from the moment it happens, it could create divergence in the trajectories of siblings who given their past have a stronger or lesser need of resources at that moment.

Looking at the impact of fostered-in children, we then compare two groups of biological children within the same host household depending on whether they were less than 8 years old when the fostered child joined their household or not. The rationale for taking 8 years old as the cut-off age is that the

decision to have ever been enroled in school for a child aged 8 years old or more is made, whereas for younger children, the decision has still to be made. Therefore, the probability to ever enrol in school for a child younger than 8 years old when the fostered child joined the household is more likely to be affected by the child's arrival than for older biological children. We assume that children who were less than 8 years old at the date of arrival of the fostered child would have had the same probability to ever enrol in school, up to a trend, than the biological children, in the same host household, who were 8 years old or older at the same date, if the household had not hosted the fostered child. Alternative cut-offs have been considered in the empirical analysis such as 7 (which is the official age at which a child should enter in a school) and 9 years old. The results were not changed. We control in the regression for the child birth order in order to account for the potential trend in the probability to enrol in school.[9] For instance, children who were 8 or older when the fostered child entered the household have a lower birth order than children who were younger and hence may receive less investment in education, since first-born children often drop out early from school to generate income or take care of younger children. Under the condition that the two groups of biological children we compare within the same household do not differ in terms of characteristics that we do not observe, that could explain differences in terms of their probability to have ever been enroled in school and that are not related to the arrival of the fostered child, the estimated difference between the two groups of biological children can be interpreted as the causal effect of the presence of fostered children. A similar strategy has been used by Mansuri (2006) to estimate the effect of adult male migration on children education and labour in Pakistan. The results of this strategy are shown in table (30) in the appendix, where the estimates of the probability to enter at school (column 1), at public school (column 2) or at the Koranic school (column 3), controlling for household fixed-effects are presented. As one can see, the coefficient of the before 8 years old dummy is never significant which means that hosting a fostered child has no apparent effect on the probability to enter at school for biological children of the host household. It should be noted though that none of the individual characteristics introduced in this model have a significant impact, once the household fixed effect is absorbed. It suggests that household characteristics dominates individual characteristics when schooling decision are taken. The same analysis applied to other outcomes only shows that older children

[9]The child birth order used here is the birth order among the co-residing siblings.

in general and boys in particular are more likely to have ever engaged in economic work. It doesn't seem to be correlated with the arrival of the fostered child in the household. Regarding the probability of supporting a heavy domestic work load (more than 28 hours), here again, no impact is discernable for the arrival of a foster child, according to the age of the biological child.

The same analysis has been done for biological children of fostering out households (BSH). The sample size is substantially reduced for this analysis, due to the fact that for 31% of fostered out children, we do not know the date of fostering and we cannot calculate the age of the BSH children when fostering took place. The results obtained are however similar: biological children of sending households do not seem to be impacted, either positively or negatively, by the fostering out of one of their siblings. Due to the large number of missing observations this result should be taken with caution.

The above results prompt two comments. First, if the arrival of a foster child in a household affects availability of resources for biological children, it doesn't seem to vary across siblings according to their age at the arrival of the foster sibling. Second, the use of panel data that allows observation of the host siblings both before and after the arrival of the foster sibling might help to answer the question of the impact of this arrival on host children, since it will permit not to rely on hypothesis regarding the vulnerable age.

3.3 Impact of fostering on fostered children

We now investigate the impact of fostering on the fostered children. In table (23) we show the estimates for school enrolment. The dependent variable is the probability of having ever been to school and the model is estimated by maximum likelihood. As one can see, the impact of being the fostered child in a host household is found positive and significant on the pooled sample (column 1 and 2). The coefficient for other non biological children, though positive, is not found significant, pointing to a difference in treatment between these different kinds of fostering. When we split the sample by gender (column 3 and 4), we observe that the coefficient remains positive but is significant only for boys. Finally, columns 5, 6 and 7 show that the positive effect holds mainly for fostered children not born in the household.

Estimates in this regression could be biased due to the non random selection of households and of fostered children. Controlling for household fixed effects can be done by estimating a logit in which one estimates the likelihood of sending a given child to school conditioned on the fact that n children over

Table 23: **Logit Model of School Enrolment (=having ever been to public school) - FI and BHH sample - marginal effects**

VARIABLES	(1) all	(2) all	(3) boys	(4) girls	(5) all	(6) boys	(7) girls
Fostered in	0.0401	0.0829**	0.105*	0.0486			
	(0.0351)	(0.0404)	(0.0558)	(0.0538)			
Other non-bio	0.00918	0.0450	0.0660	0.0314			
	(0.0487)	(0.0626)	(0.0824)	(0.0770)			
Fostered born in HH					0.0721	0.109	0.0248
					(0.0692)	(0.0789)	(0.0927)
Fostered not born in HH					0.0884**	0.0976	0.0637
					(0.0434)	(0.0625)	(0.0574)
Other born in HH					0.0134	0.0771	-0.0777
					(0.0877)	(0.0979)	(0.115)
Other not born in HH					0.0891	0.0400	0.125
					(0.0653)	(0.105)	(0.0778)
Age	-0.00617	-0.00419	0.0104*	-0.0181***	-0.00475	0.0109*	-0.0191***
	(0.00409)	(0.00498)	(0.00634)	(0.00676)	(0.00496)	(0.00626)	(0.00685)
Male	0.0379	0.0110			0.0125		
	(0.0261)	(0.0318)			(0.0318)		
Father schooling		0.202***	0.218***	0.196***	0.201***	0.219***	0.197***
		(0.0482)	(0.0546)	(0.0548)	(0.0477)	(0.0536)	(0.0548)
Mother schooling		0.227***	0.201***	0.250***	0.228***	0.201***	0.254***
		(0.0401)	(0.0509)	(0.0514)	(0.0402)	(0.0508)	(0.0512)
Father farmer		-0.0877*	-0.130*	-0.0467	-0.0885*	-0.130*	-0.0467
		(0.0498)	(0.0717)	(0.0617)	(0.0501)	(0.0717)	(0.0619)
Father unemployed		-0.0412	-0.0789	-0.0151	-0.0410	-0.0795	-0.0151
		(0.0584)	(0.0832)	(0.0776)	(0.0580)	(0.0836)	(0.0781)
Mother farmer		-0.126*	-0.0640	-0.178**	-0.130**	-0.0617	-0.186**
		(0.0652)	(0.0831)	(0.0857)	(0.0647)	(0.0818)	(0.0855)
Mother unemployed		-0.123***	-0.109*	-0.141**	-0.124***	-0.109*	-0.143**
		(0.0465)	(0.0559)	(0.0597)	(0.0465)	(0.0557)	(0.0596)
Cell head = HH head		0.0446	-0.00219	0.0891	0.0422	-0.000409	0.0832
		(0.0479)	(0.0636)	(0.0589)	(0.0481)	(0.0638)	(0.0587)
Observations	1,638	1,276	625	651	1,276	625	651

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note : Father schooling and mother schooling are dummy variables indicating whether the parent ever went to public school. "Farmer" indicates whether the corresponding parent is currently engaged in agricultural activity or was before his/her death. "Unemployed" indicates that the parent has currently no job or didn't have one just before s/he died.

N in the household have ever been enrolled.[10] The results of this estimation are shown in table 24. The impact of being a fostered child is now found negative, but not significant in the pooled sample (column 1). When we separate boys and girls (columns 2 and 3), however, the impact for boys is found positive, with a large coefficient but not significant, while that for girls is found negative and very significant. In other words, fostered girls are less likely to have ever been to school than their host sisters while there is no difference in the probability of having ever been to school between foster boys and the boys of their host family. One possible explanation is that households hosting foster boys have a particularly strong preference for education. This fixed effect bias upward the unconditional estimates. Fostered boys appear as relatively more educated because they are fostered in household who tend to educate their boys. It can even be guessed that the biological parents precisely chose this particular host family because the main motive to foster their boy out was to provide him with some more education. The story regarding girls is vastly different: on average, fostered girls appear to be neither more nor less likely to ever go to school than other girls, when controlling for a number of individual and parental characteristics. Nevertheless, when compared to their host sisters, they are at a disadvantage. It is difficult to infer from this whether households hosting girls have any specific preference for education or not, but it seems at least that girls are not sent there specifically to benefit from formal education. It is consistent with the descriptive statistics shown before that underlined the fact that girls are more often fostered to provide help to the host household. Fostered girls are hence not treated on an equal basis with biological children with respect to schooling.

The fact that fostered girls in host households do not appear to be enroled in school as much as host biological children of the same sex, does not mean that fostering *per se* is detrimental to the child. Such evidence can only be provided by a comparison of fostered girls with their biological siblings, provided that these siblings are not impacted by fostering. Since we cannot observe the origin household of fostered in children, such a comparison cannot be made. But we can make the assumption that children observed in households fostering out a child have the same average characteristics as the biological siblings of the fostered-in children. Comparing the fostered-in children with the biological siblings of the fostered-out would then provide an estimate of the impact of fostering on the fostered. Since fostered children

[10] With $0 < n < N$. For households in which none (resp. all) children are enroled, the probability of being enroled is zero (resp. 1), thus all observations belonging to households where all or neither children are enroled are dropped from the sample.

Table 24: **Conditional logit estimation of the probability to have ever attended public school - FI + BHH sample**

VARIABLES	(1) all	(2) all	(3) boys	(4) girls	(5) all	(6) boys	(7) girls
Fostered in	-0.122	-0.308	0.955	-1.481**			
	(0.219)	(0.328)	(0.726)	(0.589)			
Other non-bio	-0.280	-0.505	0.508	-2.524**			
	(0.306)	(0.438)	(0.811)	(1.039)			
Fostered born in HH					-0.164	-0.414	-0.462
					(0.502)	(1.210)	(0.786)
Fostered not born in HH					-0.384	1.352*	-2.469***
					(0.385)	(0.803)	(0.913)
Other born in HH					-1.087**	0.404	-3.014**
					(0.508)	(0.960)	(1.231)
Other not born in HH					0.678	0.954	1.251
					(0.685)	(1.171)	(2.770)
Age	-0.0676***	-0.0693**	0.0682	-0.149**	-0.0769**	0.0683	-0.151**
	(0.0255)	(0.0324)	(0.0549)	(0.0608)	(0.0328)	(0.0566)	(0.0619)
Male	0.463**	0.168			0.137		
	(0.185)	(0.225)			(0.227)		
Father schooling		0.663	0.894	0.410	0.758*	0.964	0.542
		(0.409)	(0.823)	(0.724)	(0.417)	(0.820)	(0.780)
Mother schooling		0.299	-0.368	0.163	0.324	-0.412	0.128
		(0.427)	(0.708)	(0.823)	(0.425)	(0.728)	(0.902)
Father farmer		-0.338	-0.986	0.754	-0.466	-1.134	0.306
		(0.357)	(0.742)	(0.660)	(0.366)	(0.782)	(0.698)
Father unemployed		-0.432	-0.603	-0.205	-0.539	-0.686	-0.522
		(0.495)	(0.863)	(1.170)	(0.504)	(0.919)	(1.260)
Mother farmer		-0.963*	-0.417	-0.950	-1.017**	-0.453	-1.121
		(0.512)	(0.943)	(0.867)	(0.517)	(0.948)	(0.866)
Mother unemployed		-0.227	-1.313*	0.0912	-0.163	-1.336*	0.368
		(0.339)	(0.697)	(0.635)	(0.338)	(0.718)	(0.713)
cell head= HH head		0.528	-0.603	0.294	0.519	-0.700	-0.459
		(0.405)	(0.880)	(0.969)	(0.406)	(0.898)	(1.011)
Observations	664	497	166	157	497	166	157
Number of households	142	117	53	51	117	53	51

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note : Father schooling and mother schooling are dummy variables indicating whether the parent ever went to public school. "Farmer" indicates whether the corresponding parent is currently engaged in agricultural activity or was before his/her death. "Unemployed" indicates that the parent has currently no job or didn't have one just before s/he died.

have unobserved characteristics that could impact both their probability of being fostered and that of going to school, we employ a double difference estimate that allows to remove both types of unobserved heterogeneity. Our data allow us to observe the date of the child fostering and the school enrolment status of all children before and after fostering took place. Pooling in the same sample fostered-in children (FI) and biological siblings of fostered-out children (BSH), we can then compare the change in the school enrolment of fostered children before and after fostering (first difference) with that of biological siblings of the fostered-out (second difference). The results of this estimation strategy are presented in table (25). Three variables deserve comments: "After" is just a dummy signaling the year that follows the fostering. The year before, it if equal to zero. Hence, the coefficient of this variable shows the difference in schooling probability between one year and the next that is common to all children. This effect is negative. It could reflect both the fact that each year, a child who ever entered school has a probability of dropping out and the fact that fostering happens following a negative shock for the household of origin. The coefficient of the "fostered-in" variable does not measure the impact of fostering, but accounts for the fact that fostered children might have unobserved characteristics that may make them more or less likely to go at school. In other words, that variable measures the impact of the child's unobserved fixed effect, under the assumption that all fostered children share the same unobserved heterogeneity component. Our results indicate that, indeed, fostered-in children have unobserved characteristics that make them more likely to go to school than their biological siblings. The impact of fostering itself on these children is finally given by the coefficient of the interaction term between the after and the foster dummies. We find it to be positive and more so for girls, although not statistically significant (which is not very surprising given the small number of observations. These results show that after fostering, all children from the origin household are less likely to be in school than just before, but this decline in probability is stronger for the children left behind than for the foster child himself. It points to a protective effect of the fostering practice for the fostered one.

Turning to labour outcomes, when compared to their host siblings, it appears that children fostered in are not more likely to be engaged in economic work. Surprisingly though, other non-bio are less likely to be working (see table 26). When decomposing the population of fostered children not only by status (formally fostered or other non-bio) but also by whether they were born in the household, it appears

Table 25: **Double difference estimates of the probability to enrol at public school FI + BSH sample**

VARIABLES	(1) All	(2) Boys	(3) Girls
Fostered	0.0987*	0.132*	0.0526
	(0.0595)	(0.0756)	(0.0864)
Fostered*After	0.0650	0.0456	0.111
	(0.0521)	(0.0812)	(0.0712)
After	-0.106***	-0.0973	-0.121**
	(0.0374)	(0.0632)	(0.0481)
Male	-0.0330		
	(0.0524)		
Age	-0.00749	0.00216	-0.0226
	(0.0129)	(0.0160)	(0.0142)
Observations	290	144	146

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note : Each child contributes for two observations: one for the year before the fostering (his own or that of his bio sibling) took place and one the following year. The dependant variable is a dummy equal to 1 when the child is enrolled in school. *Fostered* is a dummy equal to 1 if the child is fostered in. *After* is a dummy equal to 1 the year after the fostering to place and 0 the year before. *Male* equals 1 if a child is a boy.

that this favorable outcome is concentrated on female other non-bio not born in the household. All other children, controlling for observable characteristics, have the same probability of being at work. Otherwise, as expected it can be noticed that educated parents reduce the probability of working while having parents who are farmers increases it. Now these results could hide an actual difference between foster and biological children if they are blurred by unobserved household fixed-effect. In table 27, a conditional logit estimation, controlling for household fixed effects, shows nevertheless similar results.

We also look at the probability of doing more than 28 hours of domestic work per week. If anything, being a foster child rather than a biological child reduces the probability of doing household chores (see table 28). This result is again driven by children not born in the household: boys formally fostered in and girls non-bio are the two categories that benefit from a lower involvement in domestic work. In a fairly natural way, all these estimation point to the fact that children born in the household are equally treated with respect to education and labour, whether or not their parents are present in the household. The introduction of household fixed effect (table 29) delivers a slightly different message since it shows that girls formally fostered in and not born here are the one less involved in domestic work.

Table 26: **Logit Model of being engaged in economic work - FI and BHH sample - marginal effects**

VARIABLES	(1) all	(2) all	(3) boys	(4) girls	(5) all	(6) boys	(7) girls
Fostered in	0.0442	-0.0277	-0.0230	-0.0151			
	(0.0434)	(0.0456)	(0.0638)	(0.0586)			
Other non-bio	-0.109***	-0.116**	-0.0485	-0.168***			
	(0.0423)	(0.0499)	(0.0723)	(0.0638)			
Fostered born in HH					-0.0482	0.0305	-0.104
					(0.0820)	(0.111)	(0.0873)
Fostered not born in HH					-0.0249	-0.0521	0.0139
					(0.0543)	(0.0679)	(0.0714)
Other born in HH					-0.0500	-0.0279	-0.0678
					(0.0634)	(0.0866)	(0.0861)
Other not born in HH					-0.184***	-0.0909	-0.242***
					(0.0522)	(0.0911)	(0.0579)
Age	0.0361***	0.0352***	0.0235***	0.0451***	0.0361***	0.0248***	0.0462***
	(0.00504)	(0.00596)	(0.00768)	(0.00786)	(0.00590)	(0.00756)	(0.00787)
Male	-0.0306	-0.0574			-0.0603*		
	(0.0329)	(0.0359)			(0.0359)		
Father schooling		-0.103**	-0.0963	-0.110*	-0.102**	-0.0991	-0.110*
		(0.0508)	(0.0637)	(0.0597)	(0.0501)	(0.0614)	(0.0593)
Mother schooling		-0.186***	-0.195***	-0.177***	-0.186***	-0.191***	-0.179***
		(0.0406)	(0.0533)	(0.0578)	(0.0407)	(0.0542)	(0.0575)
Father farmer		0.141**	0.179**	0.113	0.145**	0.182**	0.120
		(0.0585)	(0.0741)	(0.0799)	(0.0584)	(0.0744)	(0.0788)
Father unemployed		0.000946	0.000814	0.0128	0.00235	0.00309	0.00984
		(0.0627)	(0.0842)	(0.0759)	(0.0628)	(0.0843)	(0.0755)
Mother farmer		0.127*	0.0930	0.156	0.132*	0.0919	0.162
		(0.0768)	(0.0942)	(0.102)	(0.0769)	(0.0946)	(0.100)
Mother unemployed		0.0192	0.0222	0.0152	0.0202	0.0167	0.0190
		(0.0488)	(0.0632)	(0.0607)	(0.0488)	(0.0636)	(0.0610)
cell head=HH head		-0.0241	-0.0422	-0.0208	-0.0182	-0.0333	-0.00909
		(0.0516)	(0.0606)	(0.0705)	(0.0519)	(0.0611)	(0.0694)
Observations	1,306	1,049	474	575	1,049	474	575

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note : Father schooling and mother schooling are dummy variables indicating whether the parent ever went to public school. "Farmer" indicates whether the corresponding parent is currently engaged in agricultural activity or was before his/her death. "Unemployed" indicates that the parent has currently no job or didn't have one just before s/he died.

Table 27: **Conditional logit estimation of the probability to being engaged in economic work - FI + BHH sample**

VARIABLES	(1) all	(2) all	(3) boys	(4) girls	(5) all	(6) boys	(7) girls
Fostered in	0.374	-0.189	1.421	-0.966			
	(0.260)	(0.434)	(1.331)	(0.760)			
Other non-bio	-0.343	-0.941	0.869	-0.558			
	(0.402)	(0.604)	(1.214)	(1.133)			
Fostered born in HH					-0.0467	1.295	-0.262
					(0.693)	(1.393)	(1.128)
Fostered not born in HH					-0.214	0.896	-1.525
					(0.495)	(2.109)	(1.021)
Other born in HH					-0.290	1.313	0.0512
					(0.723)	(1.401)	(1.259)
Other not born in HH					-1.768**	-0.271	-1.918
					(0.815)	(1.700)	(1.666)
Age	0.311***	0.342***	0.287***	0.577***	0.358***	0.328***	0.634***
	(0.0390)	(0.0505)	(0.0932)	(0.130)	(0.0530)	(0.106)	(0.150)
Male	-0.155	-0.124			-0.131		
	(0.239)	(0.292)			(0.294)		
Father schooling		-0.601	1.131	-1.494	-0.694	0.865	-1.935
		(0.532)	(1.254)	(1.057)	(0.549)	(1.449)	(1.210)
Mother schooling		-0.00986	-0.496	0.102	0.0406	-0.157	0.00709
		(0.510)	(1.131)	(0.953)	(0.519)	(1.192)	(1.031)
Father farmer		1.269***	0.242	0.384	1.449***	0.349	0.700
		(0.484)	(1.063)	(0.838)	(0.501)	(1.109)	(0.918)
Father unemployed		0.366	2.054	-1.616	0.584	1.962	-1.346
		(0.568)	(1.396)	(1.273)	(0.592)	(1.521)	(1.302)
Mother farmer		0.614	1.050	1.440	0.743	1.203	1.613
		(0.660)	(1.157)	(1.159)	(0.668)	(1.225)	(1.183)
Mother unemployed		-0.310	0.799	-0.676	-0.366	0.587	-1.110
		(0.523)	(0.867)	(1.047)	(0.525)	(0.875)	(1.101)
cell head = HH head		-0.306	-1.198	-0.896	-0.296	-0.889	-0.949
		(0.526)	(1.137)	(1.000)	(0.520)	(1.234)	(1.010)
Observations	556	409	103	162	409	103	162
Number of idmen	140	111	34	58	111	34	58

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note : Father schooling and mother schooling are dummy variables indicating whether the parent ever went to public school. "Farmer" indicates whether the corresponding parent is currently engaged in agricultural activity or was before his/her death. "Unemployed" indicates that the parent has currently no job or didn't have one just before s/he died.

It is worth pointing out that this result is not inconsistent with the descriptive statistic shown earlier that described fostered girls doing more domestic work on average. They work more than average but not more than their host siblings. These combined results suggest that girls are fostered to households who need relatively more domestic work, but they seem to share in this work load fairly with their host siblings. This is congruent to several authors hypothesis that households who foster children in need them for domestic tasks, but it doesn't support the assumption that they are exploited relative to their host siblings. This is not to deny the existence of cases of abuse, it just suggests that those abuses are not the rule.

4 Conclusion

The present paper shows that fostering situations are of vastly heterogenous nature and no single model, whether it presents fostering as disguised child labour or as a mean to invest in a given child's human capital, can account for the variety of cases.

The first point to underline is that fostering is a behaviour that regards self-selected households and individuals, and therefore, not much can be learned from descriptive statistics over the whole population only. Foster boys seem to be in general more educated than their biological siblings to start with and are sent to household who on average have a higher preference for education than non host households. Foster girls, on the other hand, seem to be more often sent to household where children undertake more domestic work. In both cases, it is noticeable that foster children are in general treated on a fair basis relative to their host siblings: boys go to school as much as other boys in host households and foster girls do not have heavier workload than girls in host households. The only exception is that fostered girls are less often enrolled in school than their host sisters, but it is not clear that it is not because they had dropped out before fostering. In addition, it appears that if anything, for both boys and girls, the fostering tends to protect the schooling of the foster child relative to his/her bio siblings.

Clearly, our results cannot speak to the existence of cases of abuse. They only suggest that such case are more likely to be the exception than the rule in the fostering practice.

A number of children live in host households without having been formally fostered to them. They differ in particular in that they are much more likely than fostered children to have been born in the

Table 28: **Logit model of the probability to be doing more than 28 hours per week of domestic work- FI + BHH sample**

VARIABLES	(1) all	(2) all	(3) boys	(4) girls	(5) all	(6) boys	(7) girls
Fostered in	-0.0258	-0.0385	-0.0348	-0.0270			
	(0.0225)	(0.0247)	(0.0245)	(0.0475)			
Other non-bio	-0.0794***	-0.0718***	-0.0299	-0.113**			
	(0.0234)	(0.0261)	(0.0337)	(0.0462)			
Fostered born in HH					-0.0316	0.0116	-0.0743
					(0.0381)	(0.0453)	(0.0606)
Fostered not born in HH					-0.0422	-0.0682***	-0.00938
					(0.0273)	(0.0224)	(0.0523)
Other born in HH					-0.0421	-0.0101	-0.0923
					(0.0405)	(0.0442)	(0.0648)
Other not born in HH					-0.0937***		-0.125**
					(0.0261)		(0.0489)
Age	0.0213***	0.0222***	0.00259	0.0432***	0.0226***	0.00397	0.0433***
	(0.00292)	(0.00340)	(0.00345)	(0.00591)	(0.00340)	(0.00352)	(0.00593)
Male	-0.154***	-0.154***			-0.155***		
	(0.0225)	(0.0262)			(0.0263)		
Father schooling		-0.0699***	-0.0582**	-0.0925**	-0.0702***	-0.0593**	-0.0918**
		(0.0255)	(0.0284)	(0.0432)	(0.0257)	(0.0285)	(0.0433)
Mother schooling		-0.0764***	-0.0468	-0.109**	-0.0770***	-0.0452	-0.108**
		(0.0253)	(0.0288)	(0.0451)	(0.0252)	(0.0298)	(0.0451)
Father farmer		0.0698*	0.0246	0.116*	0.0712*	0.0292	0.118*
		(0.0367)	(0.0398)	(0.0678)	(0.0367)	(0.0413)	(0.0679)
Father unemployed		-0.0344	-0.0363	-0.0338	-0.0339	-0.0353	-0.0347
		(0.0355)	(0.0327)	(0.0617)	(0.0354)	(0.0347)	(0.0611)
Mother farmer		-0.0192	0.0311	-0.0711	-0.0174	0.0310	-0.0709
		(0.0364)	(0.0537)	(0.0570)	(0.0362)	(0.0537)	(0.0572)
Mother unemployed		0.0142	0.0170	0.00752	0.0146	0.0113	0.00832
		(0.0282)	(0.0307)	(0.0482)	(0.0283)	(0.0325)	(0.0483)
cell head = HH head		-0.0491*	-0.0372	-0.0692	-0.0456	-0.0235	-0.0656
		(0.0290)	(0.0279)	(0.0471)	(0.0295)	(0.0276)	(0.0476)
Observations	1,345	1,068	482	586	1,068	456	586

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note : Father schooling and mother schooling are dummy variables indicating whether the parent ever went to public school. "Farmer" indicates whether the corresponding parent is currently engaged in agricultural activity or was before his/her death. "Unemployed" indicates that the parent has currently no job or didn't have one just before s/he died.

Table 29: **Conditional logit estimation of the probability to do more than 28 h./W. of domestic work - FI + BHH sample**

VARIABLES	(1) all	(2) all	(3) boys	(4) girls	(5) all	(6) boys	(7) girls
Fostered in	-0.0813	-0.454	-1.351	-1.395			
	(0.292)	(0.458)	(16,387)	(0.857)			
Other non-bio	-0.558	-0.817	-20.85	-0.0269			
	(0.483)	(0.717)	(33,312)	(1.089)			
Fostered born in HH					-0.558		-0.240
					(0.792)		(1.167)
Fostered not born in HH					-0.467	1.205	-2.114**
					(0.514)	(39,359)	(1.055)
Other born in HH					-0.270	-30.55	-0.111
					(0.861)	(152,185)	(1.266)
Other not born in HH					-1.509	-10.15	0.393
					(1.007)	(161,543)	(1.985)
Age	0.248***	0.238***	0.113	0.550***	0.245***	0.113	0.596***
	(0.0413)	(0.0475)	(0.0949)	(0.129)	(0.0488)	(0.0949)	(0.141)
Male	-1.721***	-1.526***			-1.522***		
	(0.290)	(0.324)			(0.325)		
Father schooling		-0.561	-21.11	-1.415	-0.594	-23.91	-1.969
		(0.665)	(44,873)	(1.129)	(0.687)	(181,298)	(1.253)
Mother schooling		0.108	-16.35	-0.0149	0.0363	-4.998	0.254
		(0.592)	(74,490)	(0.975)	(0.608)	(325,136)	(1.014)
Father farmer		1.007*	0.885	0.412	1.181*	-10.17	0.324
		(0.578)	(30,868)	(0.931)	(0.615)	(152,184)	(0.988)
Father unemployed		0.376	13.66	-1.235	0.475	4.795	-1.488
		(0.628)	(35,363)	(1.143)	(0.657)	(152,185)	(1.214)
Mother farmer		0.258	17.16	0.269	0.264	15.79	0.491
		(0.715)	(7,042)	(1.203)	(0.721)	(3,557)	(1.230)
Mother unemployed		0.568	58.75	0.823	0.427	71.85	0.875
		(0.590)	(30,868)	(1.075)	(0.617)	(152,185)	(1.106)
cell head= HH head		-0.248	-17.63	-0.766	-0.166	-19.87	-1.052
		(0.557)	(12,524)	(0.950)	(0.578)	(38,315)	(0.931)
Observations	469	350	46	162	350	46	162
Number of idmen	114	92	14	57	92	14	57

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note : Father schooling and mother schooling are dummy variables indicating whether the parent ever went to public school. "Farmer" indicates whether the corresponding parent is currently engaged in agricultural activity or was before his/her death. "Unemployed" indicates that the parent has currently no job or didn't have one just before s/he died.

household and left there by their parents. They also appear to be less likely than other children in the household (including formally fostered children) to have ever worked. This suggests in an interesting way that there is some informational content in the fact that the household formally declared a given hosted child as fostered rather than not.

The findings support various hypotheses regarding the fostering motives and do not allow to single any one in particular: the education motive seems to be very present in particular for boys; the "shock" motive cannot be ruled out (migration, locust, shielding of education...) nor can the idea that the need for domestic work prompts some households to becoming host for fostered girls or that fostering helps to correct for gender imbalance within the group of siblings.

While we cannot know whether a child would have fared better, had he stayed with his biological parents, we do not uncover any evidence pointing to particularly negative outcomes for fostered children, be it compared to children in the households hosting them or in the households they left. This is somewhat good news for the design of policy interventions: it seems that there is no need for a specific targeting of fostered children, which would be very demanding in terms of data collection and very costly to maintain. Instead, policies that target those households that may need a lot of domestic work or broader policies that at least ensure that domestic work does not come at the expense of schooling, should also be beneficial to fostered children.

References

Ainsworth, M., 1992. Economic aspects of child fostering in cote d'ivoire. Living Standards Measurement Study .

Akresh, R., 2004. School enrollment impacts of non-traditional household structure. IZA discussion paper N°1379 .

Akresh, R., 2009. Flexibility of household structure: Child fostering decisions in burkina faso. Journal of Human Resources .

De Vreyer, P., Lambert, S., Safir, A., Sylla, M., 2008. Pauvreté et structure familiale: Pourquoi une nouvelle enquête? StatEco N°102 .

Mansuri, G., 2006. Migration, school attainment and child labor: Evidence from rural pakistan. World Bank Policy Research Working Paper 3945 .

Marazyan, K., 2008. Biological vs. foster-children education: the old-age support motive as a catch-up determinant? some evidence from indonesia. WP, Centre d'Economie de la Sorbonne .

Notermans, C., 1999. Fosterage in cameroon: a different social construction of motherhood. mimeo, Dept. of Cultural Anthropology/Centre for Womens Studies, University of Nijmegen, Netherlands .

Tovo, M., Saito, J., Kielland, A., Hounsounou, G., 2010. Child mobility and rural vulnerability in senegal: Climate change and the role of children in household risk management strategies in rural senegal. Final project report, TFESSD .

UNICEF, 1999. Child domestic work. Tech. rep., Unicef International Child Development Center.

Vandermeersch, C., 2002. Child fostering under six in senegal 1992-1993. Population-E .

Table 30: Linear Probability Model of School Enrolment - children of host households

	(1)	(2)	(3)	(4)	(5)
VARIABLES	Ever went to school	Pub School	K. school	Ever worked	D.W. >28 h./w.
bio less than 8 excl.	-0.0685	0.0179	-0.0864	-0.0892	0.0383
	(0.0656)	(0.0699)	(0.0528)	(0.0829)	(0.116)
female	-0.00249	0.0266	-0.0291	-0.0931*	0.0656
	(0.0412)	(0.0521)	(0.0439)	(0.0496)	(0.0733)
age	-0.0112	-0.00731	-0.00390	0.0217*	0.0190
	(0.0105)	(0.0154)	(0.0126)	(0.0123)	(0.0159)
Birth order=2	0.0127	-0.00537	0.0181	-0.0108	-0.0467
	(0.0454)	(0.0518)	(0.0503)	(0.0520)	(0.0683)
Birth order=3	0.0314	-0.0779	0.109	-0.0344	-0.00677
	(0.0702)	(0.0686)	(0.0682)	(0.0658)	(0.0859)
Birth order=4+	-0.0551	-0.0989	0.0438	-0.0398	-0.0552
	(0.0739)	(0.0840)	(0.0717)	(0.0879)	(0.105)
cell head= hh head's spouse	0.0633	0.130	-0.0671	0.0933	0.0279
	(0.136)	(0.134)	(0.0707)	(0.0973)	(0.0867)
cell head=female	0.0109	-0.0436	0.0545	-0.0341	0.0737
	(0.139)	(0.154)	(0.0768)	(0.0966)	(0.117)
cell head's age	0.00225	-0.000916	0.00317	0.00831	0.00131
	(0.00408)	(0.00519)	(0.00411)	(0.00531)	(0.00693)
cell head=HH head	0.0853	0.227	-0.142	-0.0452	0.0408
	(0.163)	(0.146)	(0.0990)	(0.176)	(0.103)
Constant	0.899***	0.827***	0.0728	-0.208	-0.266
	(0.198)	(0.239)	(0.178)	(0.252)	(0.337)
Observations	607	607	607	604	483
R-squared	0.742	0.760	0.704	0.809	0.658

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix