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Fertility and Schooling in Ouagadougou: The Role of Family Networks

In sub-Saharan Africa, it is generally assumed that parents can turn to the extended family to ease the financial burden of a large family. But there are growing doubts about the capacity of family solidarity to withstand ongoing socioeconomic change. Is solidarity of this kind a universal phenomenon, and is it effective in helping parents to pay for their children's schooling? Which families receive this support? Looking at the question from this angle, Moussa Bougma, Laure Pasquier-Doumer, Thomas K. LeGrand *and* Jean-François Kobiané *examine the role of the family network in child schooling. They examine the situation in suburban districts of Ouagadougou, the capital city of Burkina Faso, using data from a retrospective survey on fertility, schooling and family support conducted in association with the Ouagadougou Health and Demographic Surveillance System, and show that family support for schooling is far from universal.*

In societies where formal systems of intergenerational resource transfer are not well-established, family support plays an important role in child education (Lee, 2007). This is the case in sub-Saharan Africa, where families often provide a home for children from outside the household or send some of their own children to live in other residential units (Isiugo-Abanihe, 1985; Lloyd and Blanc, 1996; McDaniel and Zulu, 1996; Eloundou-Enyegue and Shapiro, 2005; Akresh, 2009). Children's schooling costs may also be paid for by relatives other than the parents (Baland et al., 2013). These informal transfers, in cash or in kind, serve to ease the financial pressure on parents with large families, thus playing a role in the trade-off between quantity and quality of children. The poorest couples, and those with large families may rely more heavily than others

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on the family network to cover the cost of schooling. Indeed, the sharing of child-rearing costs by the extended family is one of the hypotheses most commonly advanced to explain the observed difference between sub-Saharan Africa and other world regions in the relationship between number of children and investment in their human capital.(1) However, in the absence of adequate data, we cannot confirm that the contribution of family networks to the cost of schooling weakens or even cancels out the effect of high fertility on educational investment in sub-Saharan Africa. Further empirical evidence is needed.

Making use of original data that go beyond the statistics generally available from standard data sources, this study aims to assess the combined effect of family networks and number of siblings on the schooling of children in Ouagadougou, Burkina Faso. Two research questions are examined: do parents with many offspring more often receive help from the family network to pay for their children's schooling than those with a smaller family size? Does support from the family network reduce inequalities in school enrolment between children with many siblings and those with few? Indeed, if the family network is to lessen, or even cancel out, the effect of high fertility on children's schooling, then parents with many children must necessarily receive more support from the extended family for this purpose than parents with few. Moreover, even if family members with many children take priority for the receipt of family support over those with few, this support may not be sufficient to offset the inequalities in schooling due to high fertility.

This problem is of particular relevance in Ouagadougou, where two parallel trends have been observed in recent years. First, childbearing behaviour has changed considerably: between 1993 and 2010, the prevalence of modern contraception rose from 19.9% to 33% in Ouagadougou, and fertility fell from 4.7 to 3.4 children per woman (INSD and Macro International Inc., 2012). Second, the poorest families appear to be facing increased economic hardship, with a rise in the incidence of urban poverty from 10.4% in 1993 to 20% in 2010 (INSD, 2010). This hardship is especially perceptible in the suburban districts where populations are poorer and more vulnerable, on average, than in the centre of Ouagadougou (Rossier et al., 2012). Moreover, no study grants to enable children from disadvantaged populations to pursue their education beyond primary level have been paid out by the Burkina Faso government since the 2001-2002 academic year (Sanou, 2001; Pilon and Wayack, 2003). Last, the rapid development of private schools in peri-urban areas where the shortage of places in public schools is especially severe has increased the cost of school enrolment, placing additional financial pressure on urban households already burdened by high housing costs (Boyer, 2010). In this general context of scarcity, both at household and government levels, there is strong reliance

(1) Contrary to the net negative correlation between number of children and schooling observed in Europe, Asia and the Americas, most studies conducted in Africa find either no correlation or a positive one between these two variables. A few recent studies have found weak negative effects of family size on child schooling (Eloundou-Enyegue and Williams, 2006; Kradval et al., 2013).

on the extended family to cover the cost of children's schooling, especially among poor parents with large numbers of children. This family support may nonetheless still be globally inadequate to offset the effect of high fertility on educational investment, since certain traditional forms of family solidarity are now being stretched to their limits (Ouagadougou: Boursin, 2007; suburban districts of Ouagadougou: Rossier and Ducarroz, 2012).

I. Theoretical and empirical considerations

The "quantity-quality" theory postulates a negative relationship between number of children and investment in their human capital (Becker and Lewis, 1973; Becker and Tomes, 1976). According to the theory of human capital, the biological parents take account of their children's future well-being, but also their own resource constraints (material resources such as money, but also non-material ones such as time) when deciding how much to invest in their children's education. At the same time, these resource constraints depend on the number of children they decide to have. If parents give priority to quantity of children, this will be at the expense of the mean level of education they can provide (i.e. quality), giving rise to a negative relationship between quantity and quality. This explains why in the West (Lindert, 1977; Blake, 1981, 1989; Hanushek, 1992; Steelman et al., 2002), and in East and Southeast Asia (Knodel and Wongsith 1991; Sathar and Lloyd, 1994; Maralani, 2008) a negative association is observed between family size and school enrolment. In Africa, however, an expanding literature on the link between number of children and schooling highlights the fundamentally contextual nature of this relationship. For example, Gomes (1984) in urban Kenya and Chernichovsky (1985) in rural Botswana both found a positive relationship between the two. In Côte d'Ivoire, Montgomery and Kouamé (1993) found that the relationship was negative in urban areas but positive in rural ones. Marcoux (1995) revealed a positive relationship in Bamako, Mali. In Ghana, girls are less likely to attend school if they have a large number of siblings, but there is no effect for boys (Lloyd and Gage-Brandon, 1994). In a comparative analysis of seven countries of sub-Saharan Africa, Lloyd and Blanc (1996) found a negative relationship in just two countries (Kenya and Namibia). More recently, in a highly detailed analysis of data from Cameroon, Eloundou-Enyegue and Williams (2006) reported a weak negative effect of family size on schooling. In a combined analysis of 26 sub-Saharan African countries, Kradval et al. (2013) also found weak negative effects.

The existence of family solidarity networks is often advanced as an explanation for the particular relationship between family size and school attendance in sub-Saharan Africa. Lloyd and Blanc (1996, p. 268) point out that "in an extended family system, parenting is a shared responsibility and children grow up with more than one 'mother' and/or more than one 'father'… This larger circle of relationships brings children both benefits (in terms of

additional support and protection from loss in case of the death of either or both parents) and cost (in terms of additional future responsibilities)." Montgomery et al. (1995, p. 14) also mention child fostering and "the existence of sibling chains of support" to explain "the possibility of an indeterminate relationship between quantity and quality, or a positive relation in African settings". Likewise, for Gomes (1984), parents in Africa do not view their childbearing decisions in terms of a simple strategy of substitution between quantity and quality of children. Quite the contrary, "they can have many children, and properly educate a high proportion of them, as long as they pay for the educational costs of their eldest children from their own income and later induce the advantaged children to finance the education of their younger siblings" (Gomes, 1984, p. 648). Hence, the channels of family support for schooling involve fostering, a very common practice in West Africa (Isiugo-Abanihe, 1985; Lloyd and Blanc, 1996; McDaniel and Zulu, 1996; Eloundou-Enyegue and Shapiro, 2005; Akresh, 2009), and the contribution of family network members (uncles, aunts, etc.) to schooling costs (Baland et al., 2013).

Yet sociological and anthropological studies have questioned the rationale of family support in West Africa, suggesting that reliance on family networks is far from systematic, and potentially inadequate to cover the financial needs of parents with many children. Family support responds to a community injunction "based on the compulsory nature of the cycle of gifts and counter-gifts that underpins a communal society, that of the large family in particular. No-one may commit the sacrilege of ignoring this injunction without fear of serious reprisals" (Marie, 2011, p. 298). These rationales of mutual support nonetheless operate within shifting systems in which individuals constantly adjust and renegotiate their position. Poverty may thus lead to exclusion from these systems, if reciprocity can no longer be guaranteed (Vidal, 1994; Vuarin, 2000). Vidal (1994) observes, for example, that in Cameroon "solidarity only benefits those in a position to provide support themselves". Other authors point up the emergence of selectivity in family support that undermines the sense of duty towards all relatives without distinction (Vignikin, 2007; Attané and Ouédraogo, 2008). A sociological analysis of the poorest suburban populations of Ouagadougou studied here[(2)] highlights other mechanisms that may erode family support for schooling costs (Rossier and Ducarroz, 2012). Among the very poor, family support is mobilized mainly for emergencies, and other family members do not always place schooling costs in this category. Next, while most families receive moral support from relatives, the financial support that poor relatives can provide, if any, may be largely inadequate: "I've got two older brothers, but they've gone to Tanghin, but them and me its the same thing. [...] We can't sort out each other's problems, them and me it's the same thing" (Noaga, cited by Rossier and Ducarroz, 2012, p. 41). Moreover,

(2) This analysis is based on 57 qualitative interviews conducted in the HDSS zone among households defined as very poor (unable to meet their primary needs) and poor (highly precarious financial situation).

urban relatives seem more reluctant to help out their dependents because life is expensive for them too, and because they are less exposed to social sanctions in the city. Last, in the wake of recent economic change and sociocultural transformations, certain customary rules relative to marriage have been abandoned, and women who find themselves without a partner due to divorce or widowhood may no longer be supported by their family.(3)

While these studies shed useful light on the mechanisms at play, they provide little information on the actual extent of the phenomena observed. Drawing on data representative of suburban Ouagadougou, this article aims to fill this knowledge gap by determining whether the scale of these phenomena is such that family networks now play a negligible role in helping households with many children to pay for their schooling.

II. Methods

Data

The data for this study come from two complementary sources, the Ouagadougou Health and Demographic Surveillance System (OUAGA HDSS, http://www.issp.bf/OPO/English/index.html) and the Demtrend survey. Set up in October 2008, OUAGA HDSS is a longitudinal data collection system covering a population of around 80,000 individuals with diverse socioeconomic profiles. These people form the entire population of five districts of the city of Ouagadougou (Kilwin, Tanghin, Nonghin, Nioko 2 and Polesgo). While the first two districts are planned, the three others are unplanned.(4) After an initial census in 2008, follow-up surveys have been conducted in the selected zones twice yearly to record, among other things, the demographic events occurring in each household. The population monitored in OUAGA HDSS is not representative of the city of Ouagadougou, but of its suburban districts characterized by a population that is young, mainly of migrant origin, and generally very disadvantaged (Rossier et al., 2012). While the prevalence of poverty in the planned districts of the HDSS is the same as that of the city as a whole, it is much higher in the unplanned districts(5) (OUAGA HDSS, 2013).

(3) Under Mossi customary law, the husband takes charge of the children in the event of separation. If he does not, and as neither the husband's nor the wife's family are responsible for the children, women abandoned with their children (an increasingly common occurrence in cities) must often assume the burden of child-rearing alone. If a mother is widowed, now that the practice of levirate marriage (between the widow and a relative of her deceased husband) has been abandoned, the family-in-law may refuse to support the widow and her children.

(4) Unplanned districts are the informal suburban districts governed by traditional land ownership rules and lacking public infrastructure (water, electricity, sewers, etc.).

(5) The prevalence of poverty (proportion of poor households) is 66% in the three unplanned districts of the HDSS, versus 24% in the city as a whole. This measure of poverty was obtained by classing households according to the goods they own. Households classed as poor have neither television, refrigerator, motorbike nor car.

A systematic comparison of fertility and school enrolment between the HDSS population and that of Ouagadougou shows that the fertility rate is lower in the HDSS than in Ouagadougou (2.5 children per woman versus 3.4 in 2010), although this is probably attributable to the under-reporting of births during the first to HDSS waves (Rossier et al., 2012). School enrolment rates, for their part, are much higher in Ouagadougou than in the HDSS[6] where there is a severe shortage of school places, in public schools especially. The HDSS is not a representative urban sample, therefore, but a laboratory where the particular characteristics of the most vulnerable urban populations are observed in detail (Rossier et al., 2012). In the case of our study, this vulnerability may lead to an overestimation of the correlation between family support and number of children and, conversely, an underestimation of the correlation between family support and school enrolment, since the family networks of the HDSS population are themselves probably more disadvantaged than the other inhabitants of the city.

Demtrend is a retrospective survey conducted in 2012 on the OUAGA DHSS platform to assess the consequences of fertility strategies and household composition on the schooling of children in urban Burkina Faso. It covered all women aged 35-59 living in the five zones of the HDSS who had had at least one child who survived to age 3, i.e. a total of 2,952 women, along with their spouses.[7] It made use of certain data already produced by the HDSS, and recorded additional information on fertility behaviours and family formation, schooling of children, family networks and their involvement in schooling, family background and the parents' attitudes to school. The family network was identified by asking the female respondents, but also their spouse, to list their close living relatives (father, mother, brothers, sisters). The support for schooling provided by the family network was then determined using a retrospective question asked to both the woman and her spouse: "Has X [each close living relative] already helped you with the schooling of one of your children?" Respondents could choose between four response categories: "1. Yes, by helping with schooling costs; 2. Yes, by taking him or her into their home; 3. Yes, by helping with schooling costs and taking him or her into their home; 4. No".

Study population

This study aims to address two additional questions: do parents with many offspring more often receive help from the family network to pay for their children's schooling than those with a smaller number of children? Does support from the family network reduce the inequalities in school enrolment between children with many siblings and those with few? For the first question,

(6) For example, gross and net primary school (6-11 years) enrolment rates are 120% and 83%, respectively, in Ouagadougou (DHS 2010) versus 108% and 75% in the HDSS. The disparity between Ouagadougou and the HDSS increases with educational level.

(7) Spouses were asked only about their social origin and their family network.

our analysis focuses on women aged 35-39,[8] and for the second, on the children of these women, aged 6-16, for whom schooling is compulsory.[9] The first analysis covers 2,736 women aged 35-59, i.e. 93% of the initial sample of female respondents, while the second covers 5,051 children, i.e. 96% of all the female respondents' children aged 6-16.

Variables used in the analysis

• *Size of family network*. The family network is defined here on the basis of a restricted list of relatives of the woman and her spouse. The list includes all the siblings of the woman and her spouse (all the child's uncles and aunts), and the mother and father of both (the child's grandparents) still living at the time of the Demtrend survey in 2012.

• *Family network resources*. In his theory of social resources, Lin (1995, p. 687) defines resources as "goods whose value is determined socially and whose possession enables individuals to survive or preserve assets. (…) These resources may be acquired (education, prestige or authority) or inherited (ethnicity, sex, sometimes religion or the parents resources)". On the basis of this definition, family network resources are represented in this study by a composite indicator based on the educational level and employment status of the family network members of the female respondents and of their spouse. For this purpose, we calculated the mean number of years of schooling completed by each family network member, and the mean number of workers in the family network in each type of employment status liable to generate a high income (public-sector employee, private-sector employee, employer). To obtain a composite indicator of the family network resources, we applied a principal components analysis (PCA) to the four variables generated, i.e. mean years of schooling, mean number of public-sector employees, mean number of private-sector employees and mean number of employers in the family network. The first factorial axis[10] was chosen as a summary indicator of the female respondents' family network resources. The higher the indicator, the greater the family network resources.

• *Family network mobilization*. This is captured via the support in cash or in kind that the woman and her spouse have already received from close relatives (father, mother, brothers, sisters) to help with their children's

(8) Women aged 35-59 are well advanced in their reproductive lives, making it possible to examine the relationship between fertility and family support for schooling on the one hand, and the combined effect of family size and family networks on child schooling on the other.

(9) Under the country's education law (Loi d'orientation de l'éducation), parents in Burkina Faso are legally obliged to enrol their children in school on their sixth birthday and to keep them in school until their sixteenth birthday (Assemblée nationale du Burkina Faso, 2007). The cost for families of sending children to school can therefore be captured via children in the 6-16 age group.

(10) The first factorial axis explains 43% of the total variance of the factorial axes of the PCA. The results of the PCA are not presented here due to lack of space but are available from the authors on request.

schooling.[11] This family support takes three possible forms; contribution to schooling costs, and fostering with or without a contribution to schooling costs. Women are divided into four categories for the purpose of our analysis: 1) women with no support for schooling from their own or their spouse's family network; 2) women with support for schooling costs only; 3) women with support in the form of fostering but no help with schooling costs; and 4) women with family support in the form of both fostering and a financial contribution to schooling costs.

• *Household socioeconomic status*. This is a composite indicator of a household's level of wealth. It takes account of the characteristics of the dwelling, its household amenities, its water supply sources and its waste and sewage management systems. The indicator was developed by using principal components analysis[12] to distinguish five categories of households according to their socioeconomic status: very low (the poorest 20%, or quintile 1), poor (quintile 2), moderate (quintile 3), high (quintile 4) and very high (the richest 20%, or quintile 5).

• *Number of children*. This indicates the woman's total number of surviving children at the time of the survey, either resident in the household or living elsewhere.[13] This measure gives a better idea of the parents' budget constraints than the number of children living in the household, since children fostered out to attend school may still be supported by their biological parents (cash, food, school uniform, books, etc.).

• *Other characteristics of the woman*. These include the place of residence at the time of the survey (planned or unplanned districts, age, educational level (no education, primary, secondary or above), ethnicity (Mossi, non-Mossi), religion (Muslim, Christian), status (household head or not) and duration of residence in Ouagadougou (0-9 years, 10-19 years, 20 years or more).

• *Child's schooling*. Schooling is measured by the child's school attendance; it is 1 if the child was attending school at the time of the survey, and zero if not.

• *Other characteristics of the child*. They include age, sex, birth order (eldest child, younger child), residence status (living in the household in a planned district, living in the household in an unplanned district, living elsewhere in Ouagadougou, living outside Ouagadougou).

Statistical analysis

As mentioned above, the aim of the analysis on the woman is to determine whether parents with many children rely more heavily on support from the

(11) On the assumption that the spouse's children who were helped are also those of the woman.

(12) The first factorial axis explains 42.4% of the total variance of the factorial axes of the PCA. The results of this PCA are also available on request.

(13) We do not have any information on the schooling of deceased children, but the results remain unchanged after controlling for the number of deceased children in all the regression models.

family network for their schooling than those with fewer children. To answer this question, two dependent variables are considered: whether or not the woman receives family support to pay for her children's schooling, and whether or not her children are fostered out to other family members to attend school. The main independent variable is the number of children, and the others are the family network size and the composite indicator of its resources, socioeconomic status, place of residence at the time of the survey, age, educational level, ethnicity, religious affiliation, duration of residence in Ouagadougou, and status of the head of the woman's household. As the two dependent variables are dichotomous, logistic regression is used. The aim of this analysis is not to identify any causal relationship between number of children and recourse to family network support for schooling, but rather to explore the link between the two variables. Indeed, the woman's perception, before becoming a mother, of the family support she will be able to mobilize after her children are born is not a variable observed in the present study. Yet women who know in advance that they can rely on family support may be less prone to control their fertility than those with no extended family to help with their children's education. The expected positive association between number of children and family network support may thus reflect both greater family solidarity for women shouldering a heavier burden, and self-selection of women with a large number of children. We remain open to these two types of interpretation, which both argue in favour of a positive correlation between fertility and family support.

In the analysis conducted on the sample of children, school attendance is the dependent variable, and number of siblings[14] the main independent variable. The other independent variables of interest are the family network characteristics (size, resources). These two dimensions of the family network that measure potential support provide a means to circumvent the problems of reverse causality that may exist between number of siblings and a direct measure of actual family network support.[15] Socioeconomic status of the household, mother's characteristics (educational level, ethnicity, religion, age) and the characteristics of the children themselves (place of residence, sex, birth order, age) are also introduced as control variables. As the dependent variable in this second analysis is also dichotomous, i.e. the child either did or did not attend school at the time of the survey, we use simple logistic regression. To assess the combined effect of family networks and number of siblings on children's school attendance, we introduce interactions between number of siblings and network characteristics (size, resources). We expect the negative effect of number of siblings on school attendance to weaken as the size and resources of the family network increase. Given the relatively small size of the analysis sample, interactions between number of siblings and

(14) Number of siblings = number of surviving brothers and sisters.

(15) For example, the only parents who receive help with schooling may be those who send their children to school. For example, some sibships received no help at all because none of the children went to school, while in those where at least one child attended school, the parents were able to receive help.

each family network characteristic are introduced separately in order to maximize the statistical power of the estimated coefficients. While this article does not aim to assess the causal relationship between fertility and schooling, the logistic regression method used in this analysis does not allow us to control for the simultaneity of decisions regarding the number of children and their schooling that may produce endogeneity bias. As a consequence, the expected negative relationship between number of siblings and school attendance may reflect both an effect of dilution of parental resources and an effect of selection of children from small sibships whereby parents who value their children's education choose to limit their family size in order to maximize each child's school attendance. However, not controlling for simultaneity of fertility and school attendance decisions is not a problem in itself for the question addressed here. Dilution of resources and selection are not necessarily mutually exclusive, since both serve to strengthen the negative correlation between number of children and school attendance. First, as resources are limited (material resources such as money, but also immaterial ones such as time), parents with fewer children can devote more resources to each child (Blake, 1981, 1989). Second, with the diffusion of modern contraceptive methods, parents who value their children's education have an effective means of reducing their fertility in order to maximize their children's school attendance,[16] again strengthening the negative correlation between number of siblings and school attendance. In all the models, correlated responses within clusters (responses given by several women in a single household, or by one woman for all of her children) are taken into account to calculate standard errors adjusted for the estimated coefficients.[17]

III. Results

Number of children and family network support for schooling

The results of the bivariate analysis reveal that almost a quarter (24%) of the female respondents received support for their children's schooling from their own family or that of their spouse (Table 1). Support was mainly in the form of help with schooling costs (received by 19.5% of the women). A considerable share (13.3%) of the women fostered out their children so that they could attend school, with or without support for schooling costs.[18]

(16) In Ouagadougou, for example, the cost of child schooling is taken into account by young parents in their fertility decisions (Bougma et al., 2013).

(17) The Stata cluster option was used on the logit command.

(18) This proportion is higher than that observed by Akresh (2009) in rural Burkina Faso, where 8.2% of households had fostered out a child at the time of the survey. While Akresh uses a broader definition of fostering (covering reasons other than education), such practices are observed only when ongoing, while the question asked here is retrospective, which explains the high proportion observed in our study.

Table 1. Distribution of women (%) by type of support received for schooling and number of surviving children

Family network support	Woman's number of children					Significance of differences					
	1-3	4-5	6-7	8+	Total	(1-3) – (4-5)	(1-3) – (6-7)	(1-3) – 8+	(4-5) – (6-7)	(4-5) – 8+	(6-7) – 8+
No support	79.5	75.8	72.4	67.5	76.0	♦	**	**	ns	*	ns
Schooling costs	10.2	10.5	11.2	15.8	10.8	ns	ns	♦	ns	♦	ns
Fostering	3.1	4.4	7.0	5.4	4.5	ns	***	ns	*	ns	ns
Schooling costs and fostering	7.3	9.3	9.4	11.3	8.7	ns	ns	ns	ns	ns	ns
Number	862	1,166	583	125	2,736	–	–	–	–	–	–

Significance levels: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; ♦ $p < 0.10$; ns = non-significant difference at 10% level.
Source: OPO-Demtrend, 2012; authors' calculations.

The most striking result of this first analysis is undoubtedly the fact that 76% of the women receive no support for their children's schooling from their own or their spouse's family network. This high proportion challenges the "myth of African solidarity" whereby the duty of communal reciprocity is a widely held principle in Africa (Vidal, 1994). This might suggest that women do not receive family support because they do not think they need it. But based on the women's responses about their expectations of support from relatives, whatever their level of need, this interpretation can be ruled out. For each person in their family network, the respondents were asked "In case of need, do you think that he/she might provide help for your children's schooling?". Some 48% reported no prospect of support from their family network. This high proportion suggests that while family solidarity is a common practice, it is by no means universal. As described in Section I, the reason for this exclusion could be economic hardship (the poorest do not have the means to maintain strong or reciprocal links with their relatives, who are themselves so poor that they cannot provide help, or only for emergencies). As a consequence of their marital histories (widowhood, separation) these women are often the head of their household; their migration history may also explain their exclusion from family solidarity: with the growing concentration of relatives in urban areas, social sanctions against those who refuse to help their relatives may be weaker. Table 2 gives some interesting pointers.

The women who do not receive support, and who have a lower economic status than those who do receive support, more often live in unplanned districts. Likewise, when looking at potential support, it is clearly the poorest women

Table 2. Women's sociodemographic characteristics by receipt of family network support for children's schooling

Women's sociodemographic characteristics	% or mean (standard deviation)		*p*-value
	Women with no support	Women with support	
Number of surviving children	4.3 (1.75)	4.5 (1.80)	< 0.001
Number of deceased children	0.7 (1.03)	0.7 (0.99)	0.788
Size of family network	11.9 (6.87)	14.6 (7.79)	< 0.001
Composite indicator of family network resources	−0.10 (1.29)	0.24 (1.43)	< 0.001
Place of residence at time of survey			
Unplanned district	37.7	49.4	< 0.001
Planned district	62.3	50.6	< 0.001
Socioeconomic status			
Quintile 1	23.8	28.6	0.015
Quintile 2	17.3	21.1	0.024
Quintile 3	20.4	23.0	0.153
Quintile 4	18.8	15.2	0.034
Quintile 5	19.7	12.1	< 0.001
Age	41.9 (4.86)	41.7 (4.58)	0.417
Level of education			
None	64.7	61.8	0.175
Primary	18.4	23.3	0.006
Secondary or above	16.9	15.0	0.236
Ethnicity			
Mossi	88.4	90.2	0.215
Non-Mossi	11.6	9.8	0.215
Religion			
Muslim	60.7	57.4	0.123
Christian	39.3	42.6	0.123
Duration of residence in Ouagadougou			
0-9 years	10.0	14.4	0.001
10-19 years	23.3	25.6	0.233
20+ years	66.7	60.0	0.002
Woman's status			
Not head of household	76.9	74.3	0.173
Head of household	23.1	25.7	0.173
Total	76.0	24.0	–
N	2,074	662	–

Source: OPO-Demtrend, 2012; authors' calculations.

who are most often excluded from family support networks.[19] The role of the relatives' poverty is revealed by comparing the family network characteristics. Women who are supported, or can expect support, have, on average, a larger and more affluent family network.[20] Equally, the duration of urban residence is associated with greater exclusion from the family support network,[21] perhaps because social control is weaker in the city, or because urban relatives have greater financial constraints. Being a household head, on the other hand, is not correlated with help received or expected.

Another important result of this bivariate analysis is that women's reliance on family network support tends to increase as their number of children increases (Table 1): 32.5% of women with a high parity – eight or more children – receive family support for schooling, versus 20.5% of women with no more than three children. This same pattern is observed for all types of support. Having many children places strong pressure on family resources, and this factor appears to be associated with women's recourse to the extended family for financial help with schooling.

However, the bivariate analysis alone cannot confirm this link, since the number of children may be correlated with other characteristics of the women, which must be controlled for.

To this end, we use multivariate models to estimate the probability for a woman of receiving support, or not, for her children's schooling (Table 3, Models 1 and 2), and the probability that she will foster out her children so that they can attend school (Table 3, Models 3 and 4). In Models 1 and 3, the number of children is treated as a continuous variable, and in Models 2 and 4 as a categorical variable. The results obtained confirm those observed with the bivariate analysis. Whatever the specification, the number of children is positively associated with the woman's propensity to seek family support for her children's schooling. An additional child is associated with an increase of 11% in the probability of receiving support for schooling, and of 15% in the probability of fostering out the children so that they can attend school. Likewise, women with at least eight children are twice as likely to receive support for schooling costs (Model 2) or to foster out their children (Model 4). Hence, the larger the number of children, the greater the likelihood that a woman will receive family support for their education. This could be interpreted to mean that family support for schooling tends to focus more on family members with large numbers of children than on those with fewer offspring.

(19) 50% of women in quintile 1 and 52% of uneducated women reported receiving no support from their family network, versus, respectively, 42% of those in quintile 5 and 38% of women with secondary education or higher.

(20) The mean family network size is 14 for women who can expect to receive support, versus 12 for those who cannot; the value of the mean indicator of network resources is 0.24 and –0.10, respectively.

(21) 66.7% of women who received no support for child schooling from their family network or from that of their spouse had been living in Ouagadougou for at least 20 years, versus 60% among those who received support (p value = 0.002).

Table 3. Factors associated with the family network support received by female respondents for the schooling of their children

Covariates	Odds ratios of receiving support for schooling (adjusted standard errors)		Odds ratios of fostering out children to attend school (adjusted standard errors)	
	Model 1	Model 2	Model 3	Model 4
Number of children (linear)	1.11 (0.04)**	–	1.15 (0.05)**	–
1-3 (*Ref.*)	–	1	–	1
4-5	–	1.33 (0.17)*	–	1.51 (0.26)*
6-7	–	1.46 (0.25)*	–	2.04 (0.41)***
8+	–	2.11 (0.55)**	–	2.18 (0.70)*
Size of family network	1.04 (0.01)***	1.04 (0.01)***	1.05 (0.01)***	1.05 (0.01)***
Composite indicator of family network resources	1.50 (0.08)***	1.50 (0.08)***	1.40 (0.08)***	1.41 (0.08)***
Place of residence at time of survey				
Unplanned district	1.05 (0.17)	1.05 (0.17)	1.26 (0.24)	1.26 (0.24)
Planned district (*Ref.*)	1	1	1	1
Socioeconomic status				
Quintile 1 (*Ref.*)	1	1	1	1
Quintile 2	0.87 (0.15)	0.87 (0.15)	0.90 (0.18)	0.90 (0.18)
Quintile 3	0.95 (0.18)	0.95 (0.18)	0.87 (0.20)	0.86 (0.20)
Quintile 4	0.68 (0.15)♦	0.68 (0.15)♦	0.47 (0.13)**	0.46 (0.13)**
Quintile 5	0.29 (0.08)***	0.29 (0.08)***	0.62 (0.16)	0.61 (0.18)♦
Age	1.01 (0.01)	1.01 (0.01)	0.99 (0.02)	0.99 (0.02)
Level of education				
None	1	1	1	1
Primary	1.07 (0.17)	1.07 (0.16)	1.03 (0.18)	1.04 (0.18)
Secondary or above	0.86 (0.17)	0.85 (0.17)	0.58 (0.15)*	0.59 (0.15)*
Ethnicity				
Mossi (*Ref.*)	1	1	1	1
Non-Mossi	0.85 (0.16)	0.85 (0.16)	0.77 (0.17)	0.77 (0.17)
Religion				
Muslim (*Ref.*)	1	1	1	1
Christian	0.94 (0.11)	0.95 (0.11)	1.11 (0.15)	1.10 (0.15)
Duration of residence in Ouagadougou				
0-9 years (*Ref.*)	1	1	1	1
10-19 years	0.99 (0.20)	0.97 (0.20)	1.29 (0.30)	1.28 (0.30)
20+ years	0.75 (0.14)	0.85 (0.14)	0.84 (0.18)	0.84 (0.18)
Woman's status				
Not head of household (*Ref.*)	1	1	1	1
Head of household	1.04 (0.15)	1.03 (0.15)	1.09 (0.18)	1.08 (0.18)
Constant	0.11 (0.07)***	0.14 (0.09)**	0.09 (0.07)**	0.12 (0.09)**
N	2,736	2,736	2,736	2,736

Note: The number of children was considered as both a continuous variable (Models 1 and 3) and a categorical variable (Models 2 and 4).
Significance levels: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; ♦ $p < 0.10$.
Source: OPO-Demtrend, 2012; authors' calculations.

Another possible interpretation is that women who have many children may also, due to the intergenerational transmission of fertility behaviours, be those who have a broader family network and hence a greater likelihood of receiving support. In this case, the positive effect of the number of children on receipt of family support observed earlier should be reinforced as the family network size increases. To verify this hypothesis, we introduce an interaction between number of children and family network size in Models 1 and 3.[22] The coefficient of this interaction is non-significant, both for Model 1 (0.003; p = 0.515) and Model 3 (0.003; p = 0.515), suggesting that this hypothesis is implausible.

Other factors associated with family network support for schooling

Alongside number of children, family network characteristics (size, resources) are also associated with family network support for schooling (Table 3), confirming the results of the bivariate analysis. Whatever the type of support considered (schooling costs, fostering) the family network size is positively associated with the probability of receiving support for schooling. Having an additional member in the woman's or her spouse's family network is associated with a 4% increase in the probability of receiving help with schooling costs, and a 5% increase in the probability of fostering out children to close relatives so that they can attend school. Likewise, family network resources are strongly associated with women's propensity to receive support from the extended family for their children's schooling, with an even stronger correlation for schooling costs: an increase in the composite indicator of family network resources is associated with a 50% rise in the probability of receiving support for schooling and a 40% rise in the probability of fostering out children to attend school. Hence, it is not so much the family network size but rather its level of resources that affects the parents' propensity to receive support for schooling.

The household's socioeconomic status plays a significant role for the highest quintiles only. Only women in quintiles 4 and 5, whose reliance on family support is presumably limited, are less likely to receive family network support to help with schooling than those in a lower quintile. For fostering, women in quintile 4 and those with secondary education or higher are significantly less likely to foster out their children.[23] By contrast, the poorest women (quintile 1) do not enjoy more family support, all other things being equal, than less disadvantaged women (quintiles 2 and 3). This could be interpreted to signify that while their needs are greater than those of women in quintiles 2 and 3, women in quintile 1 are more often excluded from the network of family solidarity. Moreover, living in an unplanned district and duration of residence

(22) The results of these models with interactions are available on request from the authors.

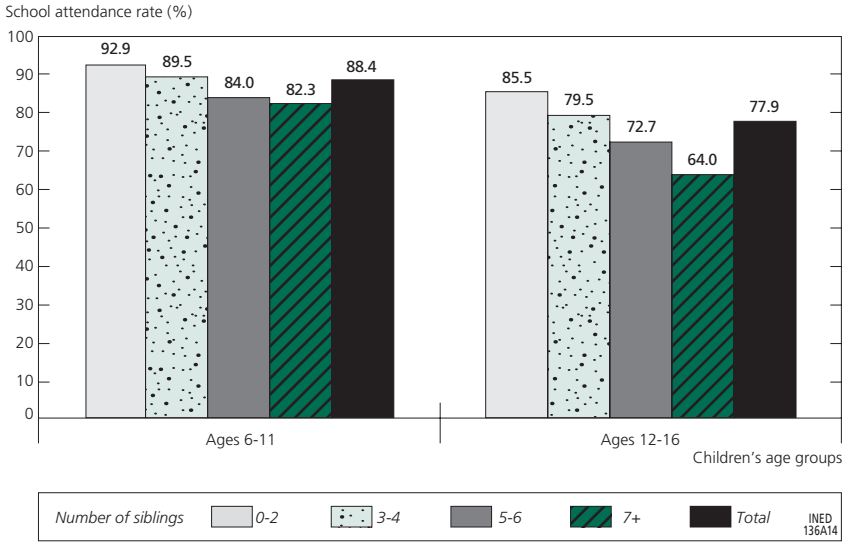
(23) The fact that being in quintile 5 does not significantly reduce the likelihood of fostering out children compared with women in quintile 1 is explained by the small number of women concerned by fostering in quintile 5.

in Ouagadougou no longer have an effect on the probability of receiving support after controlling for other characteristics, notably socioeconomic status and educational level. Ethnicity, religion and being a household head still do not play a significant role. Poverty thus appears to be the main reason for exclusion from networks of family solidarity.

Number of siblings and schooling by family network characteristics

This second analysis concerns children aged 6-16 (age range during which education is compulsory in Burkina Faso). To take account of age effects linked to falling behind or dropping out of school, we perform separate analyses of children aged 6-11 and those aged 12-16. This is justified by the fact that children aged 6-11 generally attend primary school where schooling costs are lower in relative terms, while those aged 12-16 generally attend post-primary or secondary school which are much more expensive. The school attendance rates for these two age groups and by number of siblings are shown in Figure 1. It appears that the number of surviving siblings is inversely associated with school attendance in both age groups. In the 6-11 age range, only 7% of children from a small sibship (0-2 siblings) did not attend school a the time of the survey in 2012, versus almost one-fifth (18 %) of those from a large sibship (7 or more siblings). These disparities by number of siblings are greater in the 12-16 age group, where 14.5% of children with fewer than three siblings did not attend school in 2012, versus 36% of those with seven or more siblings.

Figure 1. Proportion of children aged 6-16 attending school at the time of the survey by number of surviving siblings



Note: The differences are statistically significant at the 1% level in both age groups.
Source: OPO-Demtrend, 2012; authors' calculations.

To observe how these differences in school attendance between children in small and large sibships vary with the potential receipt of support from family networks, we produce three logistic regression models for each of the two age groups (Table 4). Models 1 and 4 are models without interaction which present the net effects of the covariates on school attendance, while the other models include the interactions between number of siblings and family network dimensions (size, resources). As mentioned earlier, these interactions enable us to assess the combined effect of number of surviving siblings and family networks on children's school attendance.

In the 6-11 age group, the family network size has no significant effect on school attendance (Model 1) and neither does it modify the relationship between number of siblings and school attendance (Model 2). On the other hand, an increase in network resources is associated with higher school attendance (Model 1) but, like network size, it does not significantly modify the pressure of a large number of siblings on school attendance (Model 3). Accordingly, the number of siblings is negatively associated with school attendance of children aged 6-11, whatever the size and resources of the parents' family network (Models 1, 2 and 3). This means that family solidarity is not able to ease the negative pressure of a large sibship on the school attendance of young children. This finding should be seen in the light of the disadvantage and poverty of the households whose children no longer attend school: more than two-thirds of children who do not attend school come from the poorest households.(24) Moreover, as shown in Section I, the poorest are also the most likely to be excluded from family networks (non-reciprocity) and to have networks whose members are poor and cannot help them in case of need.

In the 12-16 age group, we also note that the family network resources are positively associated with school attendance (Model 4) but, as for children aged 6-11, they do not significantly modify the negative relationship between school attendance and number of siblings (Model 6). The family network size, on the other hand, significantly modifies this relationship (Model 5), as shown in Figure 2 (upper part): the correlation between number of surviving siblings and school attendance is negative when family network size is below 17 members, but nil when it is above 16 members.(25) This signifies that a very broad family network may cancel the negative pressure of a large sibship on school attendance. Children aged 12-16 are assumed to attend school at post-primary or secondary level, which involves passing an entrance examination and is more expensive than primary school. Consequently, children of these ages who no longer attend school include children from very poor families, but also from families

(24) 71.7% of children aged 6-11 who did not attend school in 2012 come from poor households (quintiles 1 and 2) versus 16.6% for quintile 3, 8.1% for quintile 4 and 3.6% for quintile 5.

(25) Zero crosses the 95% confidence intervals when the family network includes at least 17 members (uncles, aunts and grandparents of the child).

Table 4. Factors associated with school attendance of children aged 6-16

Covariates	Coefficients (ajusted standard error)					
	Age 6-11 years			Age 12-16 years		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Number of surviving siblings	– 0.19 (0.06)**	– 0.26 (0.12)*	– 0.17 (0.08)*	– 0.15 (0.05)**	– 0.32 (0.08)***	– 0.13 (0.06)*
Size of family network	0.02 (0.02)	– 0.01 (0.05)	0.02 (0.02)	– 0.01 (0.01)	– 0.06 (0.02)*	– 0.01 (0.01)
Composite indicator of family network resources	0.32 (0.13)*	0.33 (0.13)*	0.21 (0.31)	0.21 (0.11)♦	0.21 (0.11)♦	0.06 (0.28)
Surviving siblings x network size[(a)]	–	0.01 (0.01)	–	–	0.01 (0.01)**	–
Surviving siblings x network resources[(b)]	–	–	0.03 (0.07)	–	–	0.04 (0.06)
Socioeconomic status						
Quintile 1 (*Ref.*)	0	0	0	0	0	0
Quintile 2	0.50 (0.23)*	0.50 (0.23)*	0.50 (0.23)*	0.12 (0.20)	0.11 (0.120)	0.13 (0.20)
Quintile 3	0.70 (0.25)**	0.71 (0.26)**	0.70 (0.25)**	0.54 (0.19)**	0.53 (0.19)**	0.54 (0.19)**
Quintile 4	1.33 (0.32)***	1.33 (0.32)***	1.33 (0.32)***	1.27 (0.23)***	1.25 (0.23)***	1.27 (0.23)***
Quintile 5	1.70 (0.47)***	1.71 (0.48)***	1.71 (0.47)***	1.68 (0.32)***	1.66 (0.32)***	1.70 (0.32)***
Mother's age	0.05 (0.02)*	0.06 (0.02)*	0.05 (0.02)*	– 0.02 (0.02)	– 0.02 (0.02)	– 0.02 (0.02)
Mother's education						
None (*Ref.*)	0	0	0	0	0	0
Primary	0.42 (0.25)♦	0.42 (0.25)♦	0.42 (0.25)♦	– 0.12 (0.19)	– 0.12 (0.19)	– 0.12 (0.19)
Secondary or above	0.62 (0.46)	0.60 (0.46)	0.65 (0.50)	1.14 (0.34)***	1.16 (0.35)**	1.17 (0.36)**
Mother's ethnicity						
Mossi (*Ref.*)	0	0	0	0	0	0
Non-Mossi	– 0.28 (0.30)	– 0.28 (0.30)	– 0.28 (0.30)	0.46 (0.25)♦	0.45 (0.25)♦	0.46 (0.25)♦
Mother's religion						
Muslim (*Ref.*)	0	0	0	0	0	0
Christian	0.29 (0.18)♦	0.29 (0.18)♦	0.29 (0.18)♦	0.27 (0.13)*	0.26 (0.13)*	0.26 (0.13)*

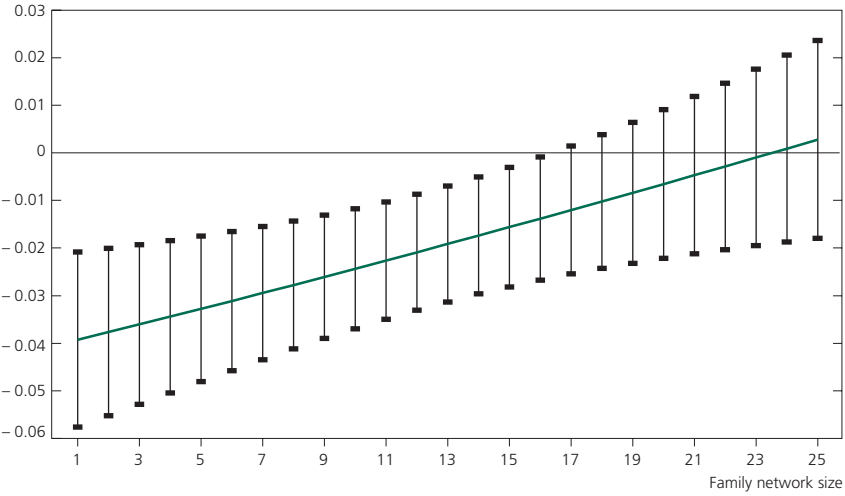
Table 4 (cont'd). Factors associated with school attendance of children aged 6-16

Covariates	Coefficients (ajusted standard error)					
	Age 6-11 years			Age 12-16 years		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Mother's marital status						
Married (*Ref.*)	0	0	0	0	0	0
Unmarried	0.09 (0.29)	0.08 (0.30)	0.08 (0.29)	– 0.14 (0.19)	– 0.15 (0.19)	– 0.14 (0.19)
Sex of child						
Male (*Ref.*)	0	0	0	0	0	0
Female	– 0.02 (0.18)	– 0.03 (0.18)	– 0.02 (0.18)	0.34 (0.12)**	0.36 (0.12)**	0.35 (0.12)**
Child's place of residence						
In household, planned district (*Ref.*)	0	0	0	0	0	0
In household, unplanned district	0.17 (0.23)	0.17 (0.23)	0.17 (0.23)	– 0.05 (0.17)	– 0.05 (0.17)	– 0.05 (0.17)
Elsewhere in Ouagadougou	– 1.33 (0.43)**	– 1.33 (0.43)**	– 1.33 (0.43)**	– 1.17 (0.29)***	– 1.20 (0.29)***	– 1.16 (0.28)***
Elsewhere, outside Ouagadougou	– 1.09 (0.37)**	– 1.09 (0.37)**	– 1.08 (0.37)**	– 1.05 (0.19)***	– 1.06 (0.19)***	– 1.05 (0.19)***
Age of child	0.51 (0.06)***	0.51 (0.06)***	0.51 (0.06)***	– 0.48 (0.05)***	– 0.49 (0.05)***	– 0.48 (0.05)***
Child's birth order						
Youngest child (*Ref.*)	0	0	0	0	0	0
Eldest child	0.24 (0.57)	0.23 (0.56)	0.29 (0.55)	– 0.08 (0.23)	– 0.08 (0.23)	– 0.08 (0.23)
Constant	– 4.34 (1.12)***	– 4.09 (1.21)***	– 4.40 (1.13)***	9.07 (1.14)***	9.94 (1.16)***	9.02 (1.13)***
N	2298	2298	2298	2753	2753	2753

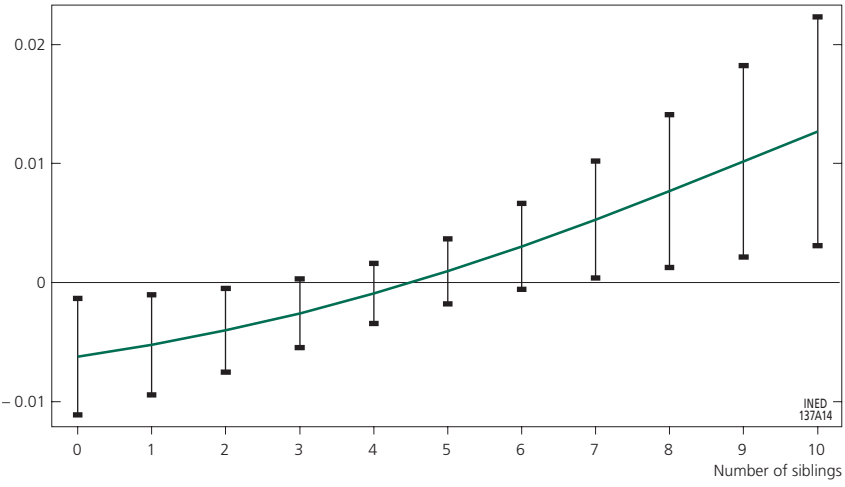
(a) Interaction between number of siblings and family network size (Models 2, 5).
(a) Interaction between number of siblings and family network resources (Models 3, 6).
Significance levels: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; ♦ $p < 0.10$.
Source: OPO-Demtrend, 2012; authors' calculations.

Figure 2. Interaction between effects of number of surviving siblings and effects of family network size on school attendance of children aged 12-16

Effect of number of siblings by family network size



Effect of family network size by number of siblings



Note: The figure is based on Model 5 in Table 3. The lines represent the 95% confidence intervals (CI).
Source: OPO-Demtrend, 2012; authors' calculations.

with fewer financial constraints.[26] While the former are liable to be excluded from family solidarity for reasons of poverty, those whose parents have fewer financial constraints may be able to maintain strong or reciprocal ties with

(26) Among children aged 12-16 who did not attend school in 2012, 37 % were in quintile 1 and 26% in quintile 2, versus 23% in quintile 3, 9% in quintile 4 and 5% in quintile 5.

their family network. For these children, therefore, family support may counteract the negative impact of a large sibship on school attendance.(27)

The compensatory effects of the family network on school attendance are also visible when we examine changes in the effect of network size on school attendance of children aged 12-16 by number of siblings (lower part of Figure 2). The effect of network size is negative for children with 0-3 siblings, nil for those with 4-6 siblings and positive for those with 7 or more siblings. As network size and the composite indicator of network resources are independent by construction, this finding suggests that in a very broad family network, parents with many children are net beneficiaries in terms of investment in schooling, while those with fewer children are net contributors. In this context, having few children may involve a stronger duty to support the schooling of other children in the extended family rather than maximizing the quality of one's own children, thereby helping to reduce inequalities between children from large and small families within a single family network

The coefficients of the other characteristics of the women, their household and their children entered into the model mostly have the expected sign. The household's socioeconomic status is positively correlated with school attendance, whatever the children's age group (Table 4). This positive correlation can be attributed both to the direct costs of schooling and to the opportunity costs associated with the tasks (paid or otherwise) that the children could have performed had they not been at school.

For the mothers' characteristics, we see that the children of educated mothers are more likely to attend school than children of uneducated mothers. Formal education broadens employment opportunities, so educated mothers may be more well-off than uneducated ones. The more educated the mother, the greater the value she may place on formal schooling and hence on her children's school attendance. Another expected result linked to competition between education systems, notably between formal schools and Koranic schools (Yaro, 1995), is the higher school attendance of children with Christian mothers compared to children with Muslim mothers. The mother's marital status, on the other hand, has no significant effect on school attendance and ethnic differences in school attendance only concern children aged 12-16. This again highlights the importance of economic factors in school attendance in Ouagadougou (Kobiané, 2006).

Regarding the children's other characteristics, we find that the likelihood for eldest siblings of attending school, compared with youngest siblings, is higher in the 6-11 age group, but lower in the 12-16 age group, although the differences are not statistically significant. As the eldest siblings are older, this

(27) This result may also signify that family network support targets children who have already confirmed their academic ability and who succeed, rather than young children (aged 6-11). This hypothesis cannot be tested, however, since family support for schooling was recorded at the time of the survey for all children without detailing their individual characteristics.

result can be linked to the finding for children's age, i.e. a positive correlation in the 6-11 age group (reflecting late school entry) and a negative one in the 12-16 age group (reflecting early school leaving). Moreover, living away from the biological parents' household is associated with a low probability of attending school, whatever the age group, as children are often fostered out for reasons other than schooling. Isiugo-Ibanihe (1985) cites five reasons for child fostering in West Africa: kinship fostering to relatives as a means to reinforce kinship ties; crisis fostering following family break-up after a death, divorce or separation; alliance or apprenticeship fostering (children are sent to the homes of non-relatives of high social standing as helpers or apprentices in order to strengthen social, political or economic alliances); domestic fostering to work as a family helper; and educational fostering to attend school. An atypical and seemingly surprising result is the absence of gender inequality in the school attendance of children aged 6-11; indeed, the proportion of girls attending school in the 12-16 age group is higher than that of boys. This finding may be explained not only by the strong social and political mobilization in recent years to promote the education of girls in Burkina Faso, but also by the fact that our study concerns the biological children of the household, since in urban areas under-enrolment primarily affects "fostered girls" (Pilon, 1995; Kobiané, 2006).

IV. Discussion and conclusion

This study aimed to assess the combined effect of family networks and number of siblings on child schooling via two complementary questions. Do parents with many offspring more often receive help from the family network to pay for their children's schooling than those with a smaller number of children? Does support from the family network offset the inequalities in school enrolment between children with many siblings and those with few?

Regarding the first question, our findings suggest that parents with a large number of children are supported by the family network for their schooling more frequently than those with fewer children. In other words, number of children is positively associated with the propensity of women or their spouse to receive help from the family to send their children to school. This positive relationship is observed for all types of support (help with schooling costs, fostering). These results are consistent with those of Baland et al. (2013) on intergenerational cash transfers in a small number of households in Cameroon. Examining informal transfers in 315 households in the town of Bafoussam, Baland and colleagues found that elder siblings of large families received more help from the extended family for schooling than younger siblings in small families. Family support for schooling therefore seems to focus more on family network members with many children than on those with few, a finding which tends to confirm the idea whereby children's education is a shared responsibility of the extended family in sub-Saharan Africa (Gomes, 1984). However, family

support for schooling observed in this study is relatively infrequent (only 24% of women have received it) and selective (the poorest are often excluded). As mentioned earlier, this situation challenges the "myth of African solidarity" whereby the duty of communal reciprocity is a widely held principle in Africa, but it may perhaps be explained, among other things, by the severe poverty of the suburban zones studied.

Regarding the second question, the findings reveal that for young children (aged 6-11), whose school drop-out rate is likely to be higher among the very poor, family solidarity is unable to offset the negative effect on school attendance of a large number of siblings. Among older children (12-16 years), on the other hand, the risk of dropping out of school affects not only the poorest, but also those with insufficient income, and large family networks can more effectively help children from large families to stay in school. In other words, family networks can attenuate the negative effects of high fertility on child schooling in the suburbs of Ouagadougou, but not for the poorest families. This partly explains why, at overall level, contrary to previous studies, the relationship between number of siblings and child schooling was found to be negative in our study.

Large families receive more support than others for their children's schooling, but in the context of a generally vulnerable population, as is the case for the Ouagadougou HDSS, this support is not sufficient to compensate for the disadvantage of high fertility. Family network support for child schooling is infrequent and poverty may be a factor of exclusion; family networks play a positive role for a certain section of the population, but not for the poorest households. This means that in suburban Ouagadougou, family networks do not help to reduce education inequalities between large and small families at primary school level, but do so to a certain extent at secondary level. This narrowing of inequality appears to benefit large families, but not the poorest among them, and at the expense of smaller ones.

Our study has certain limits that deserve to be mentioned. First, the data used are not representative of the city of Ouagadougou, but of suburban areas inhabited by generally vulnerable populations. This characteristic of the study population may therefore lead to an overestimation of the correlation between family network support and number of children, and an under-estimation of that between network support and child schooling since the family networks of the HDSS inhabitants are probably also poorer than those of the other city-dwellers. Second, the role of family networks in schooling was examined from one angle only, i.e. the support already received by the woman or her spouse from their family networks for the schooling of their children. The survey did not record transfers in the opposite direction, from the surveyed parents to their family networks, which would have given us a more accurate picture of net transfers between the two. This question could be addressed in a future study. Qualitative surveys may also be conducted to understand how cash

received from the family networks by parents with many children is actually spent on schooling, as it may well be spent on other things, especially in a context of growing pauperization.

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Moussa Bougma, Laure Pasquier-Doumer, Thomas K. LeGrand, Jean-François Kobiané • **Fertility and Schooling in Ouagadougou: The Role of Family Networks**

The importance of family solidarity networks is routinely cited in the literature to explain why the relationship between number of children and schooling in sub-Saharan Africa does not follow the predicted theoretical pattern. The dilemma between "quantity" and "quality" of children may be less acute for parents if they can foster out their children to the extended family, or receive monetary support from them to pay for schooling costs. However, there has been little empirical exploration of this hypothesis due to a lack of suitable data. Drawing on an original dataset (Ouagadougou Health and Demographic Surveillance Systems, Demtrend 2012 retrospective survey), this study uses logistic regression models to study the combined effect of family networks and number of siblings on schooling of children in suburban districts of Ouagadougou. The findings show that large families more frequently receive support from family networks for schooling than smaller ones. Moreover, family networks are able to offset the negative effect of large family size on school enrolment, but only for a part of the population, the poorest being excluded.

Moussa Bougma, Laure Pasquier-Doumer, Thomas K. LeGrand, Jean-François Kobiané • **Fécondité et scolarisation à Ouagadougou : le rôle des réseaux familiaux**

La prégnance de réseaux de solidarités familiales est couramment invoquée dans la littérature pour expliquer pourquoi la relation observée en Afrique subsaharienne entre le nombre d'enfants et leur scolarisation ne correspond pas aux prédictions des modèles théoriques. En pouvant confier leurs enfants à la parentèle ou bénéficier d'un appui financier des membres de la famille élargie pour payer les frais de scolarité, les couples n'auraient pas à arbitrer entre la « quantité » et la « qualité » de leurs enfants. Cependant, faute de données adéquates, cette hypothèse explicative reste insuffisamment explorée sur le plan empirique. En mobilisant des données originales (Observatoire de population de Ouagadougou, Enquête rétrospective Demtrend 2012), cette étude évalue, à l'aide de modèles de régression logistique, l'effet combiné des réseaux familiaux et de la taille de la fratrie sur la scolarisation des enfants dans les quartiers périphériques de Ouagadougou. Les résultats montrent que les familles de grande taille bénéficient d'un appui plus fréquent des réseaux familiaux pour la scolarisation. De plus, les réseaux familiaux seraient en mesure de compenser l'effet négatif d'un nombre élevé d'enfants sur la scolarisation, mais seulement pour une partie de la population qui exclut les plus pauvres.

Moussa Bougma, Laure Pasquier-Doumer, Thomas K. LeGrand, Jean-François Kobiané • **La Fecundidad y escolarización en Ouagadougou: el papel de las redes familiares**

El papel de las redes de solidaridad familiar es comúnmente invocado en la literatura para explicar porqué la relación observada en África subsahariana entre el número de hijos y su escolarización no corresponde a las predicciones de los modelos teóricos. Pudiendo confiar los hijos a los parientes o beneficiar de la ayuda financiera de la familia extendida para pagar los gastos de escolaridad, los padres no tendrían que escoger entre la "calidad" y la "cantidad" de sus hijos. Sin embargo, a falta de datos adecuados, esta hipótesis no ha sido suficientemente explorada empíricamente. Gracias a la explotación de datos originales (Observatorio de población de Ouagadougou, Encuesta retrospectiva Demtrend 2012), este estudio estima, gracias a modelos de regresión logística, el efecto combinado de las redes familiares y del tamaño de la fratria sobre la escolarización de los niños en los barrios periféricos de de Ouagadougou. Los resultados muestran que las familias numerosas benefician de un apoyo más frecuente de la red familiar para la escolarización de sus hijos. Además, las redes familiares serian capaces de compensar el efecto negativo de un gran número de hijos sobre la escolarización, pero ello sólo para una parte de la población que excluye a los más pobres.

Keywords: Fertility, family networks, schooling, "quantity-quality" model, Ouagadougou, Burkina Faso.

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