Decline of family size, the demographic dividend their unequal effects on children within and across households in Ouagadougou

This study aims to empirically analyze how the benefits of fertility decline and the demographic dividend are distributed within and across families in urban sub-Saharan Africa. More precisely, we will examine the schooling outcomes of children in poorer versus richer households of different types (monogamous versus polygamous…) in function of household size (larger versus smaller numbers of offspring). The goal is to understand which households and, within households, which children (sons versus daughters, first-born versus last-born…) benefit most as fertility declines – how the demographic dividend may reduce or enhance economic inequality across households and children.

Over the past decades, many studies have examined the impact of declining fertility on the well-being of children. To date, few studies have dealt with the sub-Saharan African context (where a rapid fertility decline is underway in many cities) or documented patterns of its effects – its possible impact on social inequality that will affect the next generation. A lack of appropriate data and the complexity of African families have hindered research on this issue in the African context. This study makes use of data are from the Ouagadougou (Burkina Faso) demographic surveillance system (DSS) that is following a population of over 80,000 in five city neighborhoods. This surveillance system is one of two that exists in large African cities.

Below, we briefly review the relevant literature, present the paper’s methodological approach and note a few preliminary results.

Review the literature

During the transition from high to low levels of fertility, the age structure of a population changes in ways that reduce the relative importance of those who are economically dependent, facilitating investment in children's well-being. At the household level, as the family size decreases, parents tend to have more resources (at least, per child) to invest in each of their offspring. At the same time, fewer children also means women have more time available to spend working outside the household, increasing family income that can also be invested in child schooling or health (Coale and Hoover, 1958; Becker, 1976; Blake 1981; Bloom,2003). Research has shown that the intention to limit fertility is often associated with the desire to invest more in each child, and this should reinforce the fertility decline - child schooling link (LeGrand et al, 2003).

In Latin America, Haussman and Szekely (2001) examined the experiences of 17 countries and is one of the rare studies that have sought to explain the distribution of benefits of the fertility transition. Their results indicate that, while the overall impact of the fertility decline is positive, the benefits engendered are unequally distributed across social classes: the richer segments of the population tend to gain more, thus increasing inequalities. David et al. (2011) reached the same conclusion for the short-term; in the longer term the outcome appear to be more ambiguous. Mason (2001) argues that evidence from East Asia suggests that the benefits of fertility decline were fairly widely distributed across social classes in the long-term. However, to our knowledge no study has addressed this issue in
sub-Saharan African cities, many of which are experiencing rapid fertility declines, and where incentives and family structures may result in quite different outcomes.

A decline of fertility of in Africa is increasingly evident. Data from the DHS and other sources show significant fertility reductions in recent years especially in the larger sub-Saharan cities (e.g., Locoh, 2002). Even in countries where fertility levels remain high, such as in Burkina Faso where the overall total fertility is around 6 children per woman, fertility is often declining in the main urban areas. According to the 2010 DHS, total fertility in the capital city of Ouagadougou was estimated at around 3.5, a level also documented by other data. In recent years, the educational attainment of younger people has also risen as fertility levels have fallen. This increase may be explained in part at the macro level by various programs and international policies initiatives such as Education for All, Education for Girls, and the 10-year Plan for the Development of Basic Education for Burkina Faso (PDDEB in French). At the micro level, while falling fertility may have enhanced the demand for schooling, the relationship between family size and children's schooling remains to be documented, a difficult task given the complexity of African families and practices such as child fostering. This study does not aim to assess the causal effects of fertility decline on child schooling per se - a complicated issue given the simultaneity (endogeneity) of the quality-quantity tradeoff - but rather to carefully document patterns of fertility decline and child schooling outcomes: how schooling attainment systematically changes within and across families as fertility declines. In other words, we seek to better understand which kinds of families and which children benefit most (or pay the cost) in terms of schooling success.

Data and Methodology

Data are from the Ouagadougou DSS that follows over time a population of over 80000 individuals residing in more than 18000 households. This project is implemented in five neighborhoods of Ouagadougou, two parceled (zoned, with public infrastructures like water and electricity) and three non-parceled spontaneous settlement zones. Data for this study are primarily from round 3 of the DSS which contains good data on children's schooling and work activities. These data will be complemented by previous rounds of the system that contain other information on migration and fertility histories, and from the DemTrend survey that collected more extensive data on child schooling and fertility for a subset of the site population.

The key outcome variable under study is child schooling, and much of the focus will be on the probability of being enrolled at the time of the survey. Explanatory variables at the level of children will tentatively include their age, sex, relation to household head (to distinguish fostered children), birth rank and, for youth aged 15 and above, work activities, living in union and possibly parenthood. Household characteristics include household size (number of children aged under 18 residing in the household - the focus of the analysis), family composition (type of household (polygamy or monogamy), presence of fostered children, presence of a uncle/aunt), the economic situation (socioeconomic status and whether the household is located in a parceled and not parceled area), family life cycle (age of household head and presence of a child aged under 5) and social origin (birthplace of household head, time spent in Ouagadougou for in-migrants and education level of household head).
Our methodological approach is essentially a detailed descriptive analysis that makes use of logistic regressions with interaction terms. Large and small households will be compared to examine how patterns of schooling vary across children, and the extent to which smaller households succeed in providing more schooling to their children. Children will tentatively be separated into three age groups – 8-11, 12-14 and 15-17 – and logit regressions will be used to assess differences in schooling attainment by age within small versus large households. The effects of social origin and the migration histories of families, especially that of the household head will be controlled for in the analysis. Interaction terms will be used to examine the probability of a child being enrolled in school for those living in different types of families (monogamous versus polygamous, female headed households, extended versus nuclear...). For the study of schooling outcomes of youth aged 15 and above, their work activities and the possibility (infrequent) of them living in union or having become parents will also be taken into account. Cluster controls and the Huber-White formula will be used to produce robust significance levels, as more than one child per family may be included in the analysis.

A few preliminary findings

Early results indicate that the benefits of fertility decline in terms of schooling are no equally distributed either within or across households. Limiting the analysis only to children of the household head, those residing in households with fewer children appear to have relatively more schooling, although the relation is weak and statistically insignificant. Interestingly, within larger households, girls tend to be more educated than their brothers, contrarily to our initial expectations. When all children living in the household are included in the analysis (including fostered children...) boys appear to be privileged in terms of schooling both in large and smaller households. This finding suggests that the gender inequalities in Ouagadougou may be due to the presence of fostered children, among whom boys tend to attend school and girls more often participate in domestic work, perhaps freeing up time for daughters of the household head and thus allowing them to remain in school.

The observed relation between household size and schooling outcomes is also intriguing. For the 8-11 year age group, children living in households with more children are relatively more likely to be in school. This pattern reverses for the age groups 12-14 and 15-17, for which children from smaller households are more likely to remain in school – a difference that is not significant for the 12-14 age group but that is more pronounced and statistically significant for the oldest group. With respect to birth order, the last born appear to be advantaged in terms of schooling at all ages. In contrast, first-born girls tend to be strongly disadvantaged at ages 15 and above, compared to both their sisters and brothers. Finally, in the richest families, fewer children is associated with higher levels of investment in their schooling – higher enrolment rates. For poorer households, however, those with fewer children unexpectedly tend to have worse schooling outcomes. It may be the case that the “survival” strategies of poorer households differ systematically from those of richer ones, among whom the quality-quantity tradeoff appears to operate. This finding tentatively suggests that, as fertility declines, the greatest gain may be had, at least at first, by wealthier families, acting to reinforce socioeconomic inequality in the next generation.
Bibliography


