Shaping the Family: Contraception and Family Formation in Ghana and Mali as viewed through the Lens of the Capability Approach[1]

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The freedom to plan and create the desired family

Although long-standing and the object of a very rich literature, the debate surrounding the determinants of family size is far from over. In particular, the gap between contraceptive knowledge and use – the KAP gap (Mauldin, 1965) – is at the heart of the four decades of the paradigm of unwanted births which has remained a key feature in the design of major family planning programmes around the world. The formalization and operationalisation of the concept has generated a plethora of books and articles, many associated with the name of Westoff and colleagues from 1978 onwards. The *unmet need* idea has become "an organizational concept for population policies" (Casterline and Sinding, 2000). None of these studies, it seems, have provided a fully satisfactory theoretical and empirical framework linking contraception and fertility. The *unmet need* concept has produced a number of overly simplistic views of a causal relationship between contraceptive use and realized family size, i.e. the expectation that any woman saying she does not want an additional child should be using effective contraception. As Andro and Hertrich (2001) point out, this link relies on two problematic assumptions. First, it presumes the predictive value of opinions and intentions and, secondly, it assumes that women have the rational decision-making capacity to use contraception. We are therefore left with a mechanical vision of the "determinants of fertility": the reliance on contraception is not presented as one among several possible options, but has thus become the necessary and sufficient condition for the generalized adoption of a smaller family. Still implicit is therefore the idea of a universal trend towards a unique family model which neglects the diversity of family systems. It also seems we have forgotten that the demographic transition in Europe took place well before the availability of modern contraceptives and that almost every so-called traditional society knew how to control the number of births through marriage and a range of well-established methods of birth spacing.

We are therefore faced to a paradox between a focus dominated by the contraception/fertility duet which gives emphasis on the offer side and the reaffirmation of the necessity to adopt a rights-based approach that consider individuals "as active agents, not as passive beneficiaries" (UNFPA, 2012). The issue is especially important considering the renewed interest in family planning, notably since reproductive health was listed in 2005 among the Millennium Development Goals. The recognition that fertility rates remain high or that there has been stagnation of progress in a number of sub-Saharan African countries – particularly in West Africa – has led to a renewal of neo-Malthusian approaches which carry the risk of a return to vertical programmes.

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The Capability framework developed by Amartya Sen appears to represent a meaningful way to re-centre the discussion of fertility and family planning by considering family planning not simply in terms of its outcome but in the broader perspective of the degree of liberty that people enjoy in "living the life they have reason to value" (Sen, 1999). We are then led to discover the reasons that cause people to face approximately the same conditions or challenges – for example, the same potential access to contraception – to find themselves in very different family situations.

We postulate that where motherhood is highly valued, the number of children depends on circumstantial factors rather than a pre-established project. The decision to have a child is "situated" within the conditions of the moment; it represents a way of managing uncertainty (Friedman et al 1999), of the capacity to respond to circumstances (Johnson-Hanks, 2005). Declaration about the wish of a (new) child or not, the total or the ideal number of children, are therefore very difficult to interpret. Important is understanding beforehand whether a woman possesses, or does not possess, the freedom to formulate a family plan, that is, the capacity to "shaping the family". Unlike the *unmet needs* approach, the aim is not to estimate the demand for contraception but to understand the reasons why some couples use contraception and others do not. Is it because they lack a family planning strategy or because they have found alternative ways to attain their family goals? We examine this problem through a re-analysis of the most recent Demographic and Health Surveys (DHS) in two West African countries, Ghana and Mali. These two countries have different fertility rates but are both characterized by a low contraceptive prevalence and a large gap between the knowledge and the use of modern contraception.

We proceed using a three-step analysis. First, we analyze the extent to which contraception knowledge opens up – or not – the opportunity to control realized fertility through the use of contraception and, in this respect, how women differ from men. Second, we examine the characteristics of women who do not use contraception but who have the intention of using it. Finally, we study whether these women with distinct "contraceptive culture" differ in their family formation such as measured by the birth intervals. More generally, we discuss the role of access to modern contraception in the context of a long-standing tradition of birth spacing and, in particular consider whether the individual control introduced by modern contraception has generated new inequalities.

Data and methods

Ghana and Mali: two countries in the same sub region, but with different socio-demographic realities

These two countries are characterized by low levels of contraceptive prevalence despite family policies that were first established more than forty years ago in Ghana (1969) and more than twenty years ago in Mali (1991). In Mali, the contraceptive prevalence in still below 10 percent; in Ghana, it has been stagnant at slightly more than 20 percent for two decades.

The socio-demographic dynamics in both countries are, nonetheless, quite different. While both had total fertility rates close to seven until around 1975, this rate has declined considerably in Ghana since then -- down to less than five by around 2000 whereas in Mali, it has stayed at around 6.5 (table 1). The two countries have experienced significant progress in life expectancy,

particularly through a decline in infant mortality, but the gap between the two countries remains large and, in Mali, there was no further progress in recent years.

Table 1. Socio-demographic Dynamics

Indicator	*1950–55*	*1980–85*	*2000–05*	*2005–10*
Ghana				
Fertility rate (live births per woman)	6.44	6.35	4.55	4.34
Infant mortality rate (per 1,000 live births)	150	90	62	50
Life expectancy at birth (years)	41.7	53.8	59.5	62.7
Mali				
Fertility rate (births per woman)	6.48	7.07	6.71	6.46
Infant mortality rate (per 1,000 live births)	175	141	111	101
Life expectancy at birth (years)	29.8	40.9	48.1	50.0

Source: World Population Prospects, Population Division, Department of Economic and Social Affairs, United Nations, 2010, rev. http://esa.un.org/unpd/wpp/.

The application of the Capability framework: factors of inequality in the control of family plans.

We analyse the "freedom to achieve" or realize family goals in three dimensions as follows:

- *Access to information*: What are the factors of inequality with regard to the knowledge of contraceptive methods? To what extent does this awareness affect the consistency in the use of contraception, that is, what are the factors of inequality in the use of contraception among people who say they know contraceptive methods?
- *The use/intention to use contraception*: Who has used contraception? Rather than the current use, our aim is to examine the user profile across all men and women who have ever used contraception. Who are the people who plan on using contraception?
- *Birth spacing*: In which measure is the experience of contraception associated with an increase of birth intervals ?

For each of these dimensions, we examine the role played by available resources, that is, existing infrastructure, and the differences derived from socio-cultural, household and individual characteristics. We proceed in applying the Capability Approach with a two-step analysis: a first "Capability Model" considers access to information and the use of contraception (Fig. 1), while a second one explores the association between contraception and birth spacing (Fig.2).

Building the Capability Models

Figures 1 and 2 show the variables selected as proxies for the different dimensions of the Capability framework, i.e. means to achieve, freedom to achieve and achievement. The originality of the Capability Approach is to consider not only the outcome, the so-called functionings, but identify the space of opportunities, the Capability set, which was available to the person, and figure out why persons enjoying apparently the same opportunities end up with different situations. The objective is also to distinguish the role played by endowments and conversion factors. This provide a way to structure usual socio-demographic factors between the resources available in the surrounding environment (endowments) from various types of personal resources - cultural/social, familial and individual – which enable or prevent people to access and use these

resources (conversion factors). The relative importance of these different factors provides information about the resources a person can enjoy in reference to his/her position in life and in the society. It gives thus indirectly some insight into what could be attributed to socio-cultural values and/or personal preference. However, qualitative surveys are necessary to go deeper into individual preference and real agency and the specific context. The present project includes therefore a qualitative survey (Sauvain-Dugerdil et al, to be published) which results we use here to comment some of the outcome.

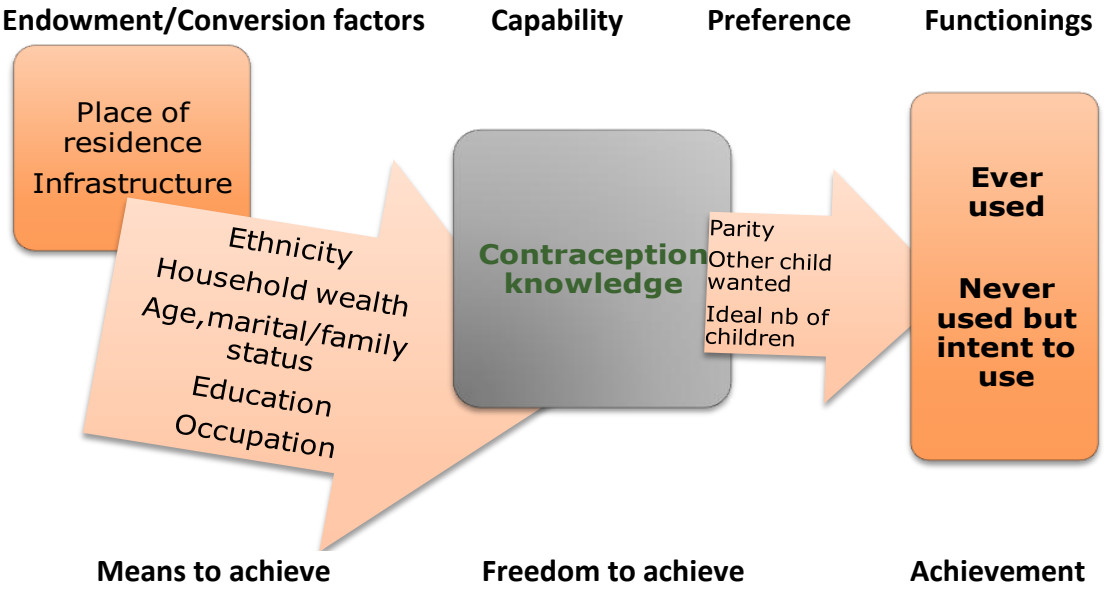
Capability Model 1: Exploring the gap between contraception knowledge and use

The first model is revisiting the KAP gap by considering whether knowledge is opening the way to contraception use, that is to say whether it can be seen as a Capability, i.e. a dimension of the "freedom to achieve". We shall therefore examine the factors of unequal knowledge and what kind of differentials in use/intention to use remains among those who declare to know contraception.

The place of residence is used as a proxy for endowments, as the resources widely differ between large cities, small towns and countryside. The model for Mali includes additional information about the availability of local infrastructure - economic infrastructure, schools, radio, health services and pharmacies - which are not available in the Ghana survey. Conversion factors are divided between cultural/social characteristics such as explained by the ethnic appurtenance, the material wellbeing of the household (wealth index) and individual resources given by the position in the life course (age), the family history and position (age at first marriage, marital status, family status number of children) and personal resources given by education and occupation.

The Capabilities in the model are measured by the knowledge of modern contraception. The outcome of interest (Functionings) is the adoption of modern contraception such as measured by (1) the use of modern contraception among those who report knowledge and (2) the intent to use modern contraception among those who report to know contraception but still never used it.

Fig 1. Capability Model 1: Exploring the gap between knowledge and use of contraception

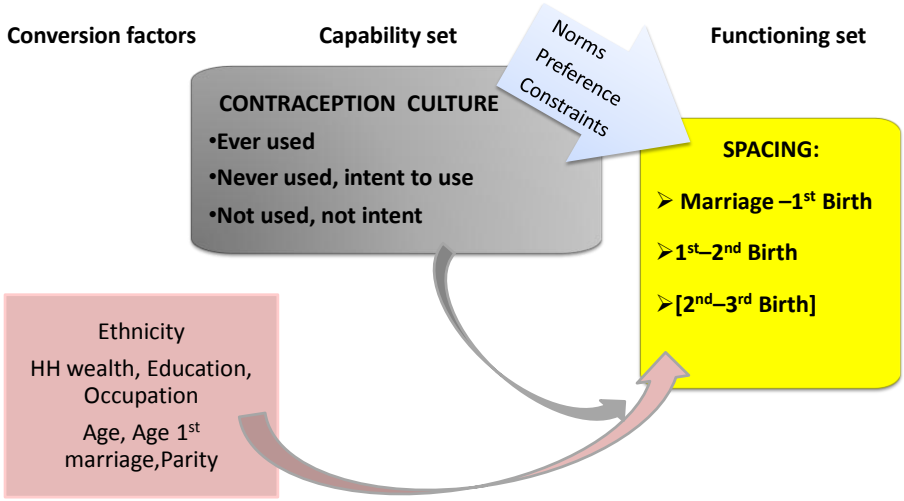


Capability Model 2. Exploring the role of contraception in birth spacing

In a second step, we explore the association between contraception use and birth spacing. In this model we test whether contraception can be considered as a Capability, i.e. a dimension of the ability to space births. We define the person's "contraceptive culture", i.e. their positioning towards contraception, through their knowledge, use and intentions to use contraception. We consider here three levels of "contraceptive culture", that is, (1) women who have used contraception at least once in their life, (2) those who have not used it, but plan on doing so, and (3) those who have not used it and declare no intention of doing so. The aim is therefore to test whether this difference in the "contraceptive culture" represents a distinct approach to the family project such as defined by birth spacing. The outcome for this model, the functionings, is the length of the protogenesic interval (marriage – first birth) and intergenesic intervals (between subsequent births), measured by the belonging to the third tercile of the spacing interval, i.e. women who have waited the longest before having their first or next child. Due to the smaller sample size in Ghana, in this country only the first intergenesic interval could be kept (for the size of the subpopulations considered, see Table A in annex).

As regards endowments and conversion factors, only characteristics which can be considered as legitimate proxies of the individual situation at the time considered (1st, 2nd and 3rd birth) have been kept. The place of residence, marital and family status at the time of the survey do not meet these conditions and have been dropped. Three groups of variables are considered as stable indicators: cultural background expressed by ethnicity, family context through wealth index and individual characteristics through age, level of education and type of occupation at the time of the survey. Age at first marriage and number of children (controlled for age) are used as indicators of adherence to values of familialism.

Fig. 2. Capability Model 2. Exploring the role of contraception in birth spacing



Results (See Tables B, C, D in annex)

1. ***The gap between knowledge and use of contraception: access to information a necessary, but not sufficient, condition for behaviour change.***

In both countries, reflecting the major efforts to promote contraceptive awareness, most survey respondents said they knew about modern contraception. In Mali, this was the case of 70 percent of women and 87 percent of men; in Ghana, knowledge was almost universal (respectively, 97 and 98 percent). However, the use of modern contraceptive methods remains limited. In Mali, only 7 percent of women and 6 percent of men say they *currently* use modern contraception; in Ghana, despite a significant decline in the fertility rate, the corresponding numbers reach only 17 percent and 19 percent. In both countries, close to three times more people have used family planning methods *at least once* in their lives (19 percent of women in Mali and 49 percent in Ghana). This demonstrates that the adoption of contraception is specific to certain periods in life and should thus be considered from a life course viewpoint. This is consistent with the outcome of our qualitative survey in the same countries which clearly shows that the intention to use contraception is generally absent in pre-marital relationships and at the start of marriage. Therefore, contraceptive prevalence, a snapshot measure widely adopted in international comparisons, appears to have a very limited meaning. However, even when taking into account the entire contraceptive history, the gap between awareness and practice is not disappearing. Among respondents who declared they knew about contraception, in Ghana only half had used it at least once, and in Mali only a quarter.

We analyse this paradox through an exam of the factors of unequal knowledge and of the remaining causes of heterogeneity in use among those who declare to know contraception, i.e. what factors enhance both knowledge and the translation of this knowledge into practice, what factors do not modify practice in spite of increasing knowledge or are important for practice but nor for knowledge.

Table 2. Knowledge, use and intent to use of modern contraception for Mali and Ghana

	Mali 2006				**Ghana 2008**			
	Women		**men**		**Women**		**Men**	
	N	%	N	%	N	%	N	%
	KNOWLEDGE							
Yes	10169	69.73	3655	86.88	4759	96.81	4494	98.38
Total	14583		4207		4916		4568	
	USE (ever use with knowledge*)							
Yes	2501	26.84	771	25.89	2028	50.5	1965	55.65
Total	9318		2978		4016		3531	
	INTENT (non-user with knowledge*)							
Yes	2452	35.97	--	--	771	38.78	--	--
Total	6817		--	--	1988		--	--

*Among those who reported to have had sexual relationship

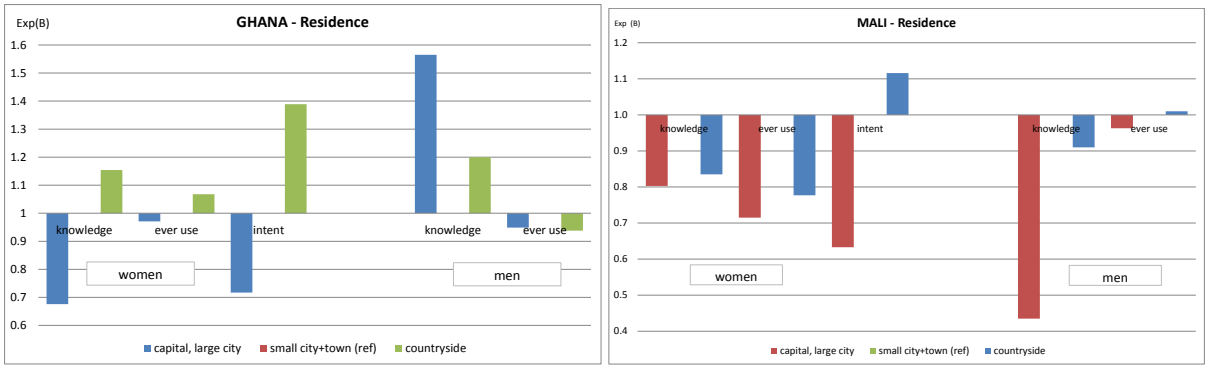
The role of the resources of the context: Residence in a large city does not, in itself, lead to more widespread contraceptive access but does imply more personal resources

In both countries, among women and men, the gross advantage of living in the capital, or in a large city, in terms of greater knowledge or use of contraception disappears when controlling for the conversion factors. It is thus not the fact of living in a large city that appears key; it is the urban lifestyle and, thus, the *capacity* of urban residents to have access and apply their knowledge.

In Ghana, if we control for the conversion factors, the positive association between the degree of urbanization in the context of residence and the knowledge and use of contraception loses its significance; indeed, among women, there is even an inverse effect. In Mali, the inverse effect is significant (except in the case of men's use): the residents of large cities are at a disadvantage relative to residents of mid-size towns. The latter shows greater awareness and, among women, a higher usage rate of contraception.

In Mali, the existence of (financial, health and education) infrastructure is nonetheless a decisive factor. We note, however, that the presence of a radio station or of a pharmacy in the neighbourhood plays no role in knowledge, although they contribute to increase the use of contraception. The effect of infrastructure is much less evident among men. A lower level of knowledge is associated with a poorer distribution of economic and health infrastructure, while the presence of a school is linked to an increase in use. The survey in Ghana does not include any questions on infrastructure.

Fig. 3. Influence of the place of residence on the "contraceptive culture"-
Logistic regression, Exp (β) coefficient. For exact figures, see Table B and C, in annex



Ethnic belonging: evidence of regional inequalities in availability of information and services

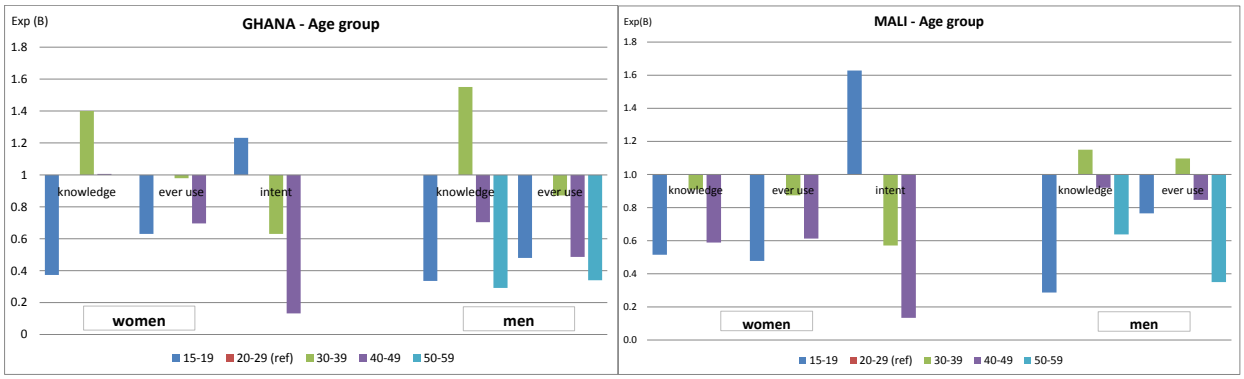
In Mali, ethnic origin has a greater effect on knowledge than on use. Awareness is greater among Bambara women – the majority ethnic group around the capital – and, to a lesser extent, among the Malinké. Knowledge about contraception is especially limited among the Songhai, the Tamasheq and the Dogon, what is consistent with the fact that these peoples live in areas that are substantially less well covered by service infrastructure. It is also among these three groups in the North of the country that there is less awareness among men. In contrast, among men, awareness in ethnic groups from the south and south-west of the country (the Senufo, the Minyanka and the Malinké) surpasses the level of awareness among Bambara. This may be explained by the fact that these groups enjoy regular contact with outside influences given their proximity to the borders and their tradition to engage in international migration. In turn, ethnic belonging does not seem to

play a role in men' use of contraception outside the fact that Tamasheq men are two times less likely than other men to use contraception. Likewise, in Ghana, the largest ethnic group, the Akan (and, among men, also the Ewe), are associated with a much greater knowledge of contraception. Among men and women, ethnic belonging plays an opposite role in terms of use which is more pronounced among the Ga/Dangme, the Ewe and the Mole-Dagbani (among men in the case of the first two). These ethnic differences are heavily confounded with broader geographical factors since the Akan and the Ewe are more concentrated in the southern half of the country, where the more urbanized and developed regions are, than other groups living in the northern regions.

Age, number of children (parity) and family situation: the individual in the family life course

In both countries, youth access less to family planning. This reflects the well-known difficulties that young people face, in particular, the problem of the lack of confidentiality in local services – which are open to all and at which, therefore, a young person may be recognized by a neighbour or a relative, what was clearly expressed in our Bamako youth survey[2]. Women under 20 years of age have a significant lower knowledge and use; in both countries, young men exhibit less knowledge, although, in terms of use, young age is less important. In Mali, moreover, being single is an additional handicap, but only for women.

Fig. 4. Influence of the age at the time of the survey on the on the "contraceptive culture".
Logistic regression, Exp (β) coefficient. For exact figures, see Table B and C, in annex



The effects of family status are complex. In Ghana, being the household head increases appreciably the likelihood of access to knowledge about contraceptive methods, particularly among women. It reinforces therefore the handicap of the youngest family members in this respect. Family status has no effect on use, however. In Mali, family status does not affect women's knowledge or use. Among men, being the household head even reduces the likelihood of knowledge and use of contraception: they who are therefore less receptive on this issue.

Family planning occurs much less frequently among older birth cohorts. In both countries, the level of knowledge and use is significantly lower among older men; the same is true of Malian women in terms of knowledge and of Ghanaian women in terms of use. Among women in both

[2] Berthé Fatou and Bassoutoura Gakou (n.p.): Genèse et réponse aux comportements à risques des jeunes en milieu urbain bamakois. Projet Jeunes, 2008

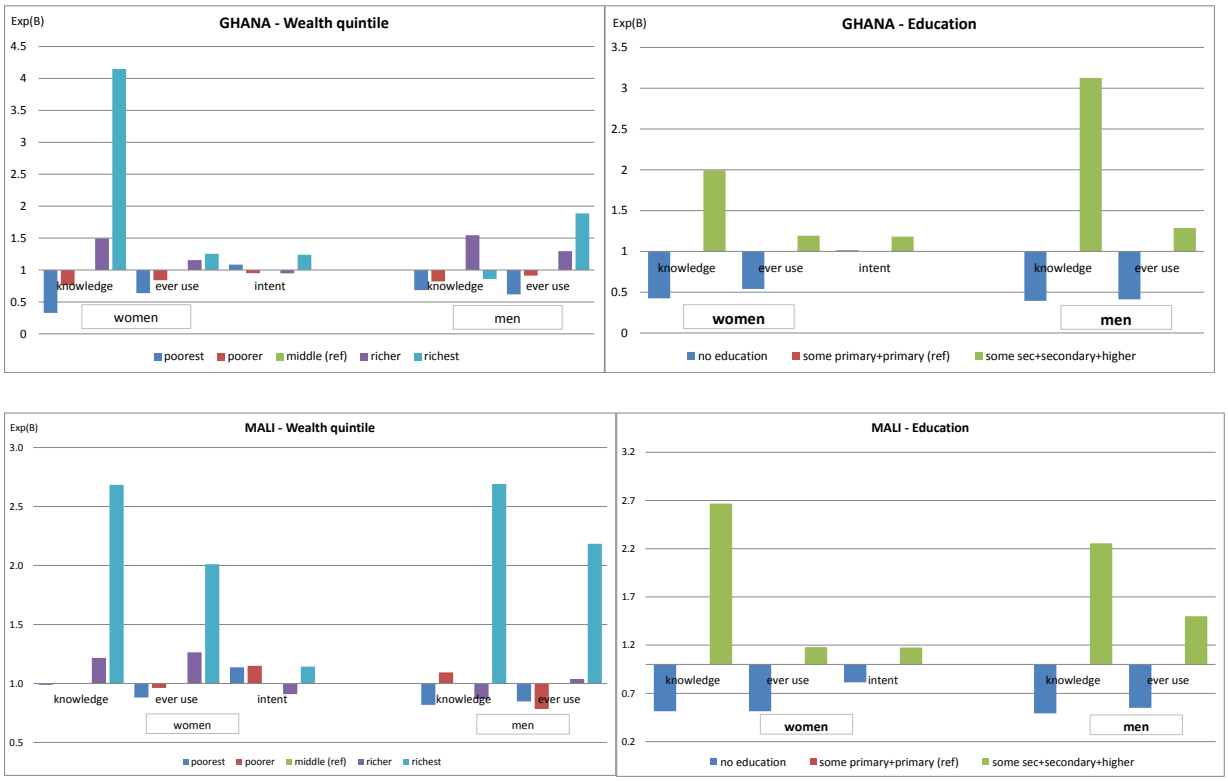
countries, when controlling for parity, the disadvantage of cohorts above the age of 30 years increases: the lower usage rate among the eldest cohorts was thus masked by an opposite effect of parity. The reliance on contraception increases considerably after the third child. In contrast, in both countries, the number of children has no influence on family planning among men. This confirms the statements of women during the qualitative research that the burden of a family with (too) many children is carried by the woman, especially when the husband is much older.

Economic and human resources: key factors in the access to contraception

Among women in Ghana, knowledge and use are positively associated with household wealth. In contrast, among men, the wealth effect occurs only in the case of use, and has no bearing in terms of knowledge. In Mali, it is people living in households above the average in terms of wealth (among men, only the highest income quintile) who enjoy a considerable advantage in both knowledge and use with respect to those living in average or poor households.

In both countries, educational attainment is a factor influencing most clearly the level of knowledge and use in family planning. Among women, the effect of higher educational attainment is, however, less for use than for knowledge; thus, the personal resources acquired through greater educational attainment are not necessarily sufficient to influence behaviour.

Fig.5. Influence of personal resources (household wealth and level of education) on the "contraceptive culture". Logistic regression, Exp (β) coefficient. For exact figures, see Table B and C, in annex



In general, among professionally active persons, family planning is more common when not belonging to the agricultural sector. In Mali, non-agricultural activity is associated, among men, with greater knowledge of contraception and among both women and men, with higher usage rates with respect to those people active in agriculture or not active in the labour force at all.

Malian women show a greater level of awareness about contraception if they are non manual workers; the agricultural sector is, however, better in this respect than manual labour or than no labour force participation. In Ghana, the level of knowledge is only slightly influenced by the sector of activity, while, among women, a non-manual occupation and, among men, a non-agricultural occupation are associated with a significantly greater use. In short, a wider acceptance of new behaviours is observed in less traditional sectors, that is, outside agriculture or manual labour.

Moreover, working in the agricultural sector does not bring more access to contraception than no labour force activity. Among men from both countries, and Ghana women, those who say they have no professional occupation have levels of knowledge and use low and similar to the case of those who are active in the agricultural sector. Among Mali women, the absence of professional activity is clearly a handicap in terms of access to knowledge but, as regards use, it is better than being active in the agricultural sector. Thus, those who work in the agriculture sector appear not to have more opportunities of contact with the outside world than do those who have no labour force activity.

Factors enhancing knowledge versus factors enhancing use

In conclusion, this first part of our analysis underlines that knowledge of contraception barely influences the level and the heterogeneity in contraception use. Numerous other factors also play a role, including preferences, values and diverse barriers.

A number of factors are both important for greater knowledge and greater use of contraception among those who declared to know contraception. More specifically, those are the characteristics of the context and the cultural affiliation of Malian women such as the advantage given by a residence in a mid-size city, the richness of the environment (the presence of economic infrastructure, a greater density in health care infrastructure) and the ethnic belonging. In general, personal resources also have a similar effect on knowledge and use. This is the case of household wealth for both women and men in Mali. In Ghana, however, the wealth effect is apparent only among women and its impact on the use of contraception is much smaller. The level of education has a similar effect for all in the case of knowledge, though the impact on use of contraception is less; the same is true, in both countries, of a non-manual occupation among women and of a non-agricultural occupation in the case of men. The disadvantage of youth is apparent in both knowledge and use of young women, especially single, in Mali and among youth of both sexes in Ghana.

Meanwhile, a number of characteristics are associated with greater knowledge, but do not have an effect on use or even tend to be associated with a reduction in use. In these subgroups, individuals do not have the possibility or the personal resources to apply the knowledge they have acquired or, for reasons particular to them, do not wish to use contraception. This is the case associated with certain characteristics of context or cultural affiliation. In Mali, for example, knowledge does not translate into increased use among women who live in areas with good educational infrastructure and of men who live in areas relatively well served by economic and health care infrastructure (in the last case, the association is even reverse: greater awareness, but less use).The same is true for the effect of the ethnic belonging (the advantage of the Bambara and the Malinké in knowledge disappears in terms of use), of being married (except Malian women) and, as for Ghana men, being the head of the household.

Finally, several characteristics have an independent effect on use, that is, they influence use though they have no effect or have a negative effect on knowledge. Use is facilitated despite the absence of an advantage in knowledge by proximity to a school or a pharmacy among Malian men and by the presence of a radio station among both sexes. The same is true of differences in ethnic belonging in Ghana. Among Malian women, the absence of a professional occupation and manual activity tend to be associated with a lower level of knowledge, but with greater usage. The same is true of young, single Malian men. Among Malian women, the status of spouse of the household head has no effect in terms of knowledge, but represents a handicap in terms of use.

2. The intentions of women who have never used contraception

In both countries, only around one third of the women respondents (36 percent in Mali and 39 percent in Ghana) who declared to know modern contraception, but have never used it say they have the intention to use such methods in the future. Noteworthy is the fact that the initiators of the survey did not seem to believe it was useful to determine the views of the men on this point. In Ghana, the intention to use contraception appears less influenced by the characteristics considered than the actual usage. In Mali, the diversity in intentions is elevated, but not necessarily in the same direction as usage.

In both countries, as was the case for use, the effect of living in a large city becomes negative if one controls for conversion factors. In Ghana, after controlling for conversion factors, intentions are inversely associated with the degree of urbanization of the place of residence: in rural areas, the intention to use is the greatest, all else being equal. In Mali, in turn, intentions of inhabitants of small towns don't differ from those in rural area and are higher than among large city dwellers. In Mali, we observe a positive relationship of intentions with a greater density of economic infrastructure, the presence of a school, or of a pharmacy, but a negative association with the presence of a radio station or health care facilities.

In Mali, ethnic belonging apart from the Bambara (and their neighbours, the Malinké, the Senufo and the Minyanka) diminishes the intention to use; the same is the case in Ghana among Ewe women and, to a lesser extent, the Ga or the Dangme. In contrast to the situation with usage, personal resources play a less marked role in intentions. In Mali, household wealth has no influence; in Ghana, the intention to use contraception is only slightly higher among wealthier households, but not so much as to reach the significance threshold. In Ghana, the level of educational attainment and occupational status likewise have no effect on intentions, while, in Mali, women without education and those who say they have no professional activity show significantly less intention to using contraception relative to women who have attended school, even briefly, or who have any labour participation. In both countries, intentions are inversely associated with age, while marriage status has no effect; however, intentions increase with parity.

Certain characteristics appear to hinder or reinforce both actual practice and intentions. In Mali, residence in a large city, the absence of economic infrastructure, and ethnic belonging to the Soninke/Songhai/Tamasheq group have the same effect of diminishing both use and intentions. In turn, the incidence of use and intentions increases with parity and the level of education (though the effect is, nonetheless, less in the case of intentions). In Ghana, living in a wealthier household and having a higher number of children increases both usage and the intention to use.

Other factors tend to have opposite effect. On the one hand, some characteristics reinforce actual use, but do not influence or even represent an obstacle for future planning among the non-users. Thus, in Mali, residence in an area served by a radio station, health care facilities, or a pharmacy is associated with greater use of contraception, but has no influence on future plans among the non-users. In both countries, household wealth increases use but does not have a significant influence on intentions, while belonging to ethnic groups other than those from the most densely populated areas diminishes the level of intentions more than use. In Mali, the status of household head does not affect actual use, but considerably reduces intentions. In both countries, the negative effect of advanced age is more important with regard to intentions than with regard to actual use.

On the other hand, some characteristics are associated with less frequent use (or no significant effect), but with a greater incidence of intentions. These population segments have not yet used, or have not yet been able to use contraception, for numerous reasons, and this apparently increases their future intentions. Such is the case of younger women who do not have ready access to family planning services or wish to form families in the immediate future. This is also found among women who work in the agricultural sector. In Mali, the same is true of women living in areas without health care facilities. The disadvantage in use among women in the poorest households and with no education disappears in Ghana (is reduced in Mali) as concerns intentions.

Finally, an important outcome is that use and intention to use contraception are not fully consistent with the desire to have children. In both countries, women who declare that they want a child within the next two years clearly use (or have the intention to use) contraception less than those who prefer to wait before having children. However, those who declare to wish no more children is associated with relatively more use and intention in Mali, but less use in Ghana. In both countries, men use is not influenced by their paternity wishes.

*3. **Access to contraception and control of the family project***

In the second analytical model, we examine the extent to which the opportunities opened up by contraception are reflected in the realization of the desired family plan as expressed by evidence on birth spacing. Through a series of logistic regression, we test the gross effect of the "contraceptive culture" (model A) and the effect after controlling for the influence of personal characteristics (model B) on the probability to have longer proto- or intergenesic intervals [3].

Our first observation is that in both countries the timing of the first birth differ from that the subsequent ones. The interval between marriage and the first birth (the protogenesic interval) is much shorter that the intervals between the subsequent births : two thirds of women have their first baby less than two years after marriage (see Table 3) and it is not associated with the "contraceptive culture" (Table D in annex). This is consistent with little room for delaying the first child after marriage such as heavily emphasized during the qualitative research in both countries. A woman may negotiate the timing of the marriage, but not the arrival of the first child: if she agreed to get married, she must give birth quickly. However, this does not mean that the timing of

[3] We have also tested another model (model C) which excludes the "contraceptive culture". In both countries, models B and C are similar as regards the effect of the personal characteristics, what implies that the "contraceptive culture" does not modifies the influence of personal characteristics.

the first birth is not influenced by cultural or personal characteristics although not in the same way as for subsequent births (see next sections below).

After the first birth, a woman may attempt to delay pregnancy, such is reflected in longer intervals. In Mali, two-thirds of women wait more than two years, two and half years in Ghana where a third postpones the second birth more than three and a half year.

Table 3. Spacing intervals for Mali and Ghana

	Mali (in months)			Ghana (in months)		
SPACING INTERVAL	1st tercile	2nd tercile	3rd tercile	1st tercile	2nd tercile	3rd tercile
Marriage to birth	0-12	13-26	27+	0-11	12-23	24+
First to second birth	0-23	24-32	33+	0-28	29-44	45+
Second to third birth	0-23	24-32	33+	--		

The length of the intergenesic intervals appears to be related with the "contraceptive culture": in both countries, women who ever used contraception are more often among those with longer intervals between births. However, while the role of the "contraceptive culture" is not modified when controlling for ethnicity, its influence is temporized when accounting for personal characteristics (and, in Mali, even disappears as for the second intergenesic interval). It is therefore not the fact of belonging to the group of women who plan their families, or who have or do not have the intention of planning their families, that matters, but the characteristics that distinguish these three groups of women.

The cultural dimension of birth spacing

The influence of ethnic origin and birth cohort is testimony to the role of cultural factors and their time trends. Different ethnic traditions exist in the reliance on birth spacing, though they have generally tended to disappear over time. The less frequent incidence of long intervals between births among younger cohorts confirms the findings of a number of studies on the loss of African traditions in birth spacing in the face of "modernity". In particular, in Mali, the fact that women of the ethnic majority in the capital, the Bambara, who are regularly in contact with foreign influences, are less often found among the group that waits before having their second child, is consistent with the abandonment of traditional behaviour in birth spacing. In both countries, the cultural anchor is likewise evidenced by specificities such as longer intervals among the ethnic groups of Southern Mali and the Mole-Dagbani in Ghana. Nonetheless, if the effect of evolution over time (measured by the differences across birth cohorts) is clear in all the regression models, the effect of ethnicity is not significant with respect to the second intergenesic interval (an effect that has been tested, we recall, only in the case of the data on Mali).

The importance of personal resources

The importance of other factors highlights that modernity has also led to the emergence of the "Africa of individuals" described by Marie (ed, 1997) that generates inequalities based on personal resources. The effects of personal resources are clearer in the case of the intergenesic than of the protogenesic intervals, particularly in Mali. This is consistent with a narrower scope of freedom as regards the timing of the first birth.

An increase in resources does not have a uniform impact in greater birth intervals. In Mali, living in a wealthier household and being relatively more educated enhance the probability to belong to the group exhibiting longer intervals both protogenesic and intergenesic. However, being active in the agricultural sector (or having another manual profession in the case of the second intergenesic interval) also increases the longer intervals, what may rather express the persistence of traditions of spacing. One may therefore be dealing with a mixed effect of the spread of new behaviour, persistent traditionalism, and constraints of poverty. This is also expressed in the "U" shape effect of household wealth on the protogenesic interval. Both richer and poorer tend to delay the first birth. The "U" effect is only evident, however, in the case of the protogenesic interval, which thereby appears better anchored within traditional values. The thesis about two opposite types of determinants of the family size - i.e. quality of living conditions and women status, but also constraints of precariousness (so-called Malthusianism of poverty, Cosio, 2001) - has therefore to be completed by a third dimension, which is the persistence of old traditions of spacing.

Globally, personal resources seem to have little effect on birth spacing in Ghana. The wealth of the household, educational attainment and type of occupation have no impact in terms of an eventual delay of first births. The lengthening of the subsequent intervals associated with household wealth and education is lessened and loses its statistical significance when controlling for familialism (see below). In Ghana, the "U" effect associated with household economic status is not found; however, as in the case of Mali, women who are active in manual professions are more often among the group that waits longer before having a second child.

Adherence to family values

It is well known (for example, see Locoh 1995 and Locoh and Mouvagha-Sow 2005) that larger family size is associated with values characterized by a desire to maximize fertility through earlier marriage and shorter birth intervals. Here, we do not use family size as a causal factor of birth interval, which would represent a chronological inconsistency, but, rather, as an indicator of family values. This is verified in all our models for the two countries through the association of large families with shorter birth intervals. The age at first marriage is also a highly significant factor in all our analyses which, however, cannot be interpret this as a dimension of the maximization of fertility, because early marriage appears associated with longer birth intervals. This confirms certain statements in the qualitative research according to which pregnancy should be avoided at a very young age for health reasons. This is one of the rare justifications that seem widely accepted for waiting before having a first child. In both countries, early marriage is also associated with longer birth intervals. In contrast, in both countries, a relatively later marriage implies a catching up: maternity follows marriage more quickly in this case. If one controls for family size, however, a later marriage has no effect on the subsequent birth intervals.

Conclusion

The aim of this article is to revisit the links between contraception and fertility through the application of the Capability Approach on DHS data for two West African countries. At the light of the Capability perspective, we focus not on outcomes in family size, but on the unequal capacity of women to design and manage a plan for their family formation. We have examined this issue in two stages. First, we have sought to identify the factors involved in the adhesion to a "contraceptive culture". Second, we examine the role played by the adoption of contraception in the control of a family plan as expressed by birth spacing.

Both the present analysis and the qualitative survey describe the use of contraception as unusual at the start of couple and family life; current contraceptive use is therefore strongly influenced by the life course position and provides little information about the person's attitude towards contraception and actual behaviour in this respect. This is why we rather have considered the "contraceptive culture"- that is the belonging to groups who has ever used contraception or who has the intention of doing so.

We have investigated the interaction between the "contraceptive culture" brought by new facilities, and the practice, often quite long standing, of traditional birth spacing in two countries that are distinct not only in many cultural features, but also in their colonial past and their trajectory in the demographic transition. More generally, we investigate about a situation that may be considered a failure in family policies and programmes, namely, the low level of use of contraceptive methods in Mali and the stagnation in Ghana in spite of a high level of knowledge.
We come back here to the main results across the Capability scheme, i.e. the respective role of endowment and the conversion factors, and the capabilities/functioning binome.

1. *The role of access to information and services in the adoption of a "contraceptive culture"*

Endowments have been considered through the resources of the close surroundings. Yet the results confirm that access is not just resulting from availability. Differences in access to information on contraception and to services are explained to some extent by the settings, such as measured by differences associated with the place of residence and regional anchors. One of the intriguing outcomes of our research in this respect is that the better knowledge and the higher use of those residing in the capital or a large city however disappear when controlling for personal characteristics, i.e. unequal access to the opportunities offered by the city. In Ghana, the place of residence is not any more significant and in Mali it even appears better to live in mid-size towns. This is consistent with problems of mobility in larger cities and, therefore, with the fact that metropolises are not covered equally by information and services. This reflects the importance of proximity to services what is consistent with Mali data about the effect of available infrastructures. Part of heterogeneity related with ethnicity expresses regional inequalities such as shown by the fact that belonging to the ethnic group of the majority around the capital implies a higher "contraceptive culture" (both as regards knowledge and use as for Mali women, in Ghana and among Mali men only for knowledge). In Mali, "contraceptive culture" is especially low when being from an ethnic group from the North of the country.

The complexity of determinants of access is also well illustrated by the serious disadvantage of young women and men in both countries as refers both to knowledge and use. This certainly reflects the problem, often cited in the literature, of inadequacy of services to meet the specific needs of the young. In Mali, this handicap is increased if the young person is single, while, in

Ghana, for women and for men, being single is associated with limits on access to information, but not with usage. One might therefore suppose that, in Ghana, while the supply side might show gaps in responding to the needs of the young, for example in terms of confidentiality, measures have been taken so as not to discriminate against single people in the access to services. However, the quality of services, i.e. the offer side, may not be the only obstacle to youth "contraceptive culture": our qualitative survey clearly shows in both countries that contraception is not seen as a preoccupation as refer to pre-marital relationships.

2. *Inequities across individuals : the role of personal resources and gender*

Personal resources – in this case, living in a wealthier household, having received an education and having a non-manual job (or not working in agriculture among men) – represent a fundamental factor in the level of knowledge and in the use of contraception among both sexes in both countries. The key role of personal resources in adhesion to the "contraceptive culture" illustrates well the strong individual dimension in this respect. In turn, personal resources are much less important to explain heterogeneity in intentions to use contraception.

Gender differences in factors of heterogeneity in contraception knowledge and use[4] are consistent, especially in Mali, with the stronger dependence of women on their actual situation and context, while men's behaviour seems to rely more on their values. In Mali, men appear to be less influenced by the context, that is the differentials due to the place of residence, infrastructures and ethnicity. In both countries, the role of the status in the family and the number of children also differ. Being the household head decreases the knowledge and use among men, particularly in Mali, while among women it has no effect in Mali, and a positive one in Ghana but only as for knowledge. It appears thus that among men the responsibility of a family is not reflected through a higher concern in family planning. For women, being the head of the household does not seem to provide more power in decision making such as could be expressed in more access, what is consistent with the fact that this position is often rather the result of a weaker position because of the absence of the husband[5]. The effect of family size differs also significantly between men and women in both countries. Among women, there is an opposite effect between actual and ideal number of children. While the size of the ideal family is negatively associated with contraception, the opposite is true for the actual number of children. This increase in contraception use (and intention) is consistent with the testimonies in the qualitative research that the burden of children still falls on women. In contrast, in both countries, men contraceptive behaviour does not appear to be influenced by the actual number or desire of children, but only by their family values (ideal size). The adoption of contraception does not appear to be the results of daily contingencies but of their adherence to a project of small family.

3. *The role of the "contraceptive culture" in Shaping the Family*

Knowledge of contraception appears to be a necessary, but not sufficient condition for the adoption of modern methods of contraception. Indeed, significant inequalities in use may be observed among individuals who declare they know about the methods of contraception. Moreover some factors may enhance knowledge but do not seem to empower individuals to adhere to the "contraceptive culture", or lead to more use but do not affect the degree of

[4] Let's remind that men were not questioned about their intentions.

[5] Or, simply, a statistical status for example, in a polygamous relationship, the position of co-wife without a declared co-residence.

knowledge. These apparent inconsistencies may be interpreted at the light of comments of interviewees in the qualitative surveys who report to a very poor understanding of what it is about beyond a superficial notion of going to the health centre to get something to avoid pregnancies. These problems in the quality of the information received are certainly also at the root of the persistent prejudice about side effects of contraception. The KAP-gap paradox, also known as regards prevention of hiv/aids[6], has certainly to be reconsidered in terms of the kind of knowledge necessary to influence behaviour.

The second central issue in the debate in family planning in West Africa is that of the link, usually considered as straightforward, between the adhesion to contraception and the fall of fertility. Our postulate in this paper has been that women rarely have a pre-conceived fertility project and that they rather adapt and react to the actual situation. This was expressed in the qualitative survey through the difference between the opinions about family life – the accepted norms - and the person's actual life history. This is consistent with what is known about much higher prevalence of contraception use for spacing rather than for limiting. The ability to Shaping the Family has therefore been considered here through intervals between births.

Birth spacing in West Africa has presently to be seen as a complex transition from old traditions anchored in collective values to more individualistic behaviour which are influenced by personal resources, but also characteristics of a cultural nature and varying adherence to the values of familialism. The old traditions seem more meaningful with respect to the protogenesic than the intergenesic intervals, as expressed in the interviews but also through the influence of personal resources. While education and wealth are factors of longer intervals between births, personal resources do not seem to contribute to lengthen the interval between marriage and first birth what can be interpreted as the result of little individual freedom in this respect. In fact, in Ghana, the length of the interval between the marriage and the first birth shows no effect from personal resources. In Mali, personal resources have a complex impact on the protogenesic interval. Indeed, it is women with less resources – from the poorest household and least educated – who wait the longest before having a first child after marriage, which may be due to barriers linked to poverty or possibly with cultural factors. In turn, personal resources appear more important in determining differences in intergenesic intervals, although traditions may also play a role, as shown by ethnicity and traditions of spacing among older cohorts and, as for the second interval in Mali, among women in the agriculture sector.

The "contraceptive culture" appears to have only a relatively weak impact on the ability to control the family project, as reflected in birth spacing. On the one hand, it has no effect on the protogenesic interval. On the other hand, its association with longer intergenesic intervals is fading when controlling for individual characteristics. It is not the fact of adopting contraception that counts, but the profile of the women who adopt this behaviour. Thus, contraception does not seem to represent, in itself, a transformation in values, but, rather, a means to realize intentions influenced by other factors. Consequently, a poor availability of contraception may be an obstacle, but does not determine the decision about fertility, and contraception is not the only means for delaying births. What remains as an open issue is to have a better understanding of how contraception use interact with other factors such as temporary separation of spouses or abortion. Such considerations are beyond the scope of this article.

[6] La CIPD et les OMD : un tout orienté vers l'action. Rapport régional d'évaluation de l'Afrique - CIPD +15 (1994-2009), p.140. UNECA. http://repository.uneca.org/bitstream/handle/10855/4054/bib.%2030536%20F.pdf?sequence=1, p.142.

References

Andro Armelle, and Véronique Hertrich (2001): 'La demande contraceptive au Sahel: les attentes des hommes se rapprochent-elles de celles de leurs épouses?' *Population* 56 (5): 721–771.

Casterline John B. and Steven W. Sinding (2000): 'Unmet Need for Family Planning in Developing Countries and Implications for Population Policy'. *Population and Development Review* 26 (4): 691–723.

Cosio-Zavala Maria Eugenia (2001): 'Les deux modèles de transition démographique en Amérique latine : le malthusianisme de la pauvreté', *Les Transitions Démographiques des Pays du Sud*, Gendreau F. et M. Poupard (eds), Aupelf-Uref, Editions Estem, Paris, p. 41-52

Friedman Debra, Michael Hechter and Satoshi Kanazawa (1999): 'Theories of the Value of children: A new approach', in Leete, ed., *Dynamics of Values in Fertility Change*, Oxford: Oxford University Press.

Govindasamy Pav and Emmanuel Boadi (2000): *A decade of unmet need for contraception in Ghana:*

Programmatic and policy implications. Calverton, Maryland: Macro International Inc. and National Population Council Secretariat [Ghana].

Hertrich Véronique (2001): Nuptialité et rapports de genre en Afrique. Un premier bilan des tendances de l'entrée en union au cours des quarante dernières années. Coll. internat. Genre, population et développement en Afrique, Abidjan.

Jejeebhoy Shireen (1995): Women's education, autonomy, and reproductive behaviour. Experience from developing countries. Clarendon Press Oxford, International Studies in demography.

Johnson-Hanks Jennifer (2005): When the Future Decides. Uncertainty and Intentional Action in Contemporary Cameroon. Current Anthropology, 46(3) : 363-385.

LeGrand Thomas, Todd Koppenhaver, Nathalie Mondain, Dominique Gomis, Sara Randall and Kenneth Hill (2003): Reassessing the insurance effect : A qualitative analysis of fertility behaviour in Senegal and Zimbabwe. Population and Development Review, 29 (3), 375-403.

Locoh Thérèse (1995): Familles africaines, population et qualité de vie. Dossiers du CEPED 31.

Locoh Thérèse et Myriam Mouvagha-Sow (2005): Vers de nouveaux modèles familiaux en Afrique de l'Ouest ? Communication au XXVè Congrès international de la population, Tours.

Marie Alain (ed, 1997): L'Afrique des individus, Itinéraires citadins dans l'Afrique contemporaine. Paris, Karthala.

Mariko, Soumaila, Mohamed Ayad, Rathavuth Hong, Oumou Kéïta et Mamadou Diop (2009): *Pratique contraceptive et importance des besoins non satisfaits en matière de planification familiale au Mali, de 1995 à 2006: Analyses approfondies des Enquêtes Démographiques et de Santé au Mali, 1995-1996,2001 et 2006*. Rapports d'analyses approfondies des EDS No. 69. Calverton, Maryland, USA : CPS/DNSI et ICF Macro.

Mauldin W. Parker (1965): 'Fertility Studies: Knowledge, attitude and practice'. *Studies in Family Planning* 1 (7): 1–10.

Moreland Scott, Ellen Smith and Suneeta Sharma (2010): World Population Prospects and

Unmet Need for Family Planning. Futures Group and the William and Flora Hewlett Foundation

Nussbaum, Martha (2000): Women and Human Development. The Capabilities Approach, Cambridge, Cambridge University Press.

Oheneba-Sakyi Yaw and Tim B. Heaton (1993):Effects of socio-demographic intervals on birth intervals in Ghana. J. of Comparative Family Studies, XXIV(1), 113-135

Obeng Gyimah Stephen (2002?): The Dynamics of Timing and Spacing of Births in Ghana. J. of Comparative Family Studies, , 42-60

Robeyns Ingrid (2005) : The Capability Approach : a theoretical survey. J. Human Dev. 6(1) : 93-114.

Rutstein Shea O. 2011. *Trends in Birth Spacing*. DHS Comparative Reports No. 28. Calverton, Maryland, USA: ICF Macro.

Sauvain-Dugerdil Claudine, Thomas Bosiakoh, Samba Diarra, Anouk Piraud, Samba Diop, John Anarfi, Samuel Agyei-Mensah (to be published): « Shaping the family »: Individual's capabilities to exercise reproductive rights.

Sen Amartya (1999): Development as freedom. New York: Alfred A. Knopf Press

Ushma D., B. Upadhyaya and Michelle J. Hindin (2005): Do higher status and more autonomous women have longer birth intervals? Results from Cebu, Philippines. Social Science & Medicine 60, 2641–2655

Westoff, Charles F. (1978): 'The Unmet Need for Birth Control in Five Asian Countries'. *Family Planning Perspective* 10 (3): 173–181.

Westoff, Charles F. (2006): 'New Estimates of Unmet Need and the Demand for Family Planning'. DHS Comparative Report 14, Macro International, Calverton, MD.

Annex. Table A. Data inclusion criteria and sample size

SPACING INTERVAL	Criteria	Sample size Mali Women	Mali Men	Ghana Women	Ghana Men
Marriage to birth	Have at least 1 child	10457		2673	
Ever used	+ knowledge and ever used modern contraception	1929		1194	
Never used, intent	+ knowledge and never used modern contraception, but intent to use	1880	--	488	--
Never used, no intent	+ never used modern contraception, no intent to use	6648		991	
First to second birth	Have at least 2 children	9372		2648	
Ever used	+ knowledge and ever used modern contraception	1918		1237	
First interval	+ knowledge and never used modern contraception, intent to use	1654	--	439	--
Second interval	+ never used modern contraception, no intent to use	6160		972	
Second to third birth	Have at least 3 children	8021			
Ever used	+ knowledge and ever use of modern contraception	1588			
First interval	+ knowledge and never used modern contraception, intent to use	1329	--	--	--
Second interval	+ never used modern contraception, no intent to use	5104			

Annex. Table B. Factors associated with knowledge, use and intention to use modern contraception in Mali (DHS 2006).

Logistic regression. Value of the Exp of the β coefficient

			MALI - WOMEN									MALI - MEN			
			KNOWLEDGE		EVER USE			INTENT				KNOWLEDGE		EVER USE	
endowments	**Residence**	capital, large city	2.21 ***	0.80 *	1.18 **	0.71 ***	0.72 ***	1.05	0.66 ***	0.63 ***		1.76 **	0.44 **	2.03 ***	0.96
		small city+town	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00
		countryside	0.76 ***	0.84 ***	0.52 ***	0.78 ***	0.78 ***	1.26 ***	1.11	1.12		0.68 **	0.91	0.50 ***	1.01
	Economic infrastructures	0	0.65 ***	0.74 ***	0.83 **	0.86 *	0.86 *	0.62 ***	0.70 ***	0.70 ***		0.48 ***	0.64 ***	0.80	0.91
		1-3	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00
		4-5	1.02	1.10	0.90	0.94	0.94	1.25 **	1.25 **	1.21 *		1.29	1.53	1.16	1.12
	School	y	1.31 ***	1.26 ***	1.16 *	1.11	1.13	1.17 **	1.23 ***	1.24 ***		1.21	1.04	1.69 ***	1.68 ***
		no	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00
	Radio	y	1.05	0.99	1.22 ***	1.16 **	1.16 **	0.93	0.92	0.93		1.12	0.96	1.33 **	1.19
		no	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00
	Health services	0	0.67 ***	0.70 ***	0.82 ***	0.95	0.96	1.26 ***	1.21 **	1.22 ***		0.61 ***	0.61 ***	0.84	0.95
		1-2	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00
		3+	1.60 ***	1.26 **	1.29 ***	1.24 **	1.23 **	1.08	1.00	0.99		1.69	1.47	0.79	0.72 **
	Pharmacy	y	1.07	1.04	1.20 ***	1.14 *	1.15 **	1.03	1.11	1.13		0.86	0.76	1.16	1.00
		no	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00
conversion factors	**Ethnicity**	Bambara		1.00		1.00	1.00		1.00	1.00			1.00		1.00
		Malinké		0.82 *		1.16	1.19 *		0.92	0.93			1.60 *		1.09
		Peulh		0.42 ***		0.88	0.91		0.64 ***	0.65 ***			0.41 ***		1.01
		Sarkolé/Soninké/Marka		0.32 ***		0.83 **	0.84 *		0.60 ***	0.60 ***			0.98		0.83
		Sonrai		0.14 ***		0.60 ***	0.65 ***		0.27 ***	0.31 ***			0.39 ***		1.20
		Dogon		0.17 ***		0.98	1.06		0.38 ***	0.42 ***			0.39 ***		1.02
		Tanachek		0.26 ***		0.75 **	0.73 **		0.25 ***	0.22 ***			0.17 ***		0.56 *
		Sénoufo/Minianka		0.56 ***		0.92	0.93		1.02	1.05			1.87 **		1.31
		Bobo/Other		0.31 ***		0.94	0.97		0.56 ***	0.57 ***			0.49 ***		0.83
	Wealth quintile	poorest		0.99		0.86	0.88		1.08	1.14			0.82		0.85
		poorer		1.00		0.95	0.96		1.09	1.15			1.09		0.78
		middle		1.00		1.00	1.00		1.00	1.00			1.00		1.00
		richer		1.22 ***		1.26 ***	1.26 ***		0.89	0.91			0.87		1.04
		richest		2.68 ***		1.98 ***	2.01 ***		1.11	1.14			2.69 ***		2.18 ***
	Age group	15-19		0.52 ***		0.46 ***	0.48 ***		1.61 ***	1.63 ***			0.29 ***		0.77
		20-29		1.00		1.00	1.00		1.00	1.00			1.00		1.00
		30-39		0.91 *		1.15 **	0.87 *		0.56 ***	0.57 ***			1.15		1.10
		40-49		0.59 ***		0.96	0.61 ***		0.14 ***	0.13 ***			0.92		0.85
		50-59											0.64 **		0.35 ***
	Marital status	married/living together		2.16 ***		1.40 ***	1.46 ***		0.99	1.00			2.77 ***		1.12
		not married/divorced/widowed		1.00		1.00	1.00		1.00	1.00			1.00		1.00
	Family status	household head		1.16		0.94	0.93		0.44 ***	0.44 ***			0.57 **		0.56 ***
		spouse		1.03		0.94	0.88		0.82 **	0.81 **			0.34		0.40
		other		1.00		1.00	1.00		1.00	1.00			1.00		1.00
	Education	none		0.52 ***		0.52 ***	0.52 ***		0.81 **	0.81 **			0.49 ***		0.55 ***
		some primary+primary		1.00		1.00	1.00		1.00	1.00			1.00		1.00
		some secondary+higher		2.67 ***		1.18 *	1.18 *		1.23	1.18			2.26 ***		1.50 ***
	Occupation	not working		0.74 ***		1.19 **	1.23 ***		0.71 ***	0.73 ***			1.00		1.04
		non-mannual		1.68 ***		1.65 ***	1.72 ***		1.08	1.12			2.27 ***		1.40 **
		agriculture		1.00		1.00	1.00		1.00	1.00			1.00		1.00
		manual		0.80 ***		1.46 ***	1.61 ***		0.78 **	0.83			2.22 ***		1.40 **
	# living children	0-3					1.00		1.00	1.00					0.95
		4-6					1.49 ***		1.65 ***	1.49 ***					1.00
		7+					1.69 ***		2.88 ***	2.37 ***					0.76
preferences	**Other child wanted**	none+undecided					1.32 ***			1.14					0.97
		within 2 yrs					0.68 ***			0.48 ***					0.83
		within 2+ yrs					1.00			1.00					1.00
		wanted, DK when					0.84 *			0.66 ***					0.89
	# ideal children	0-3					1.09			1.07					1.51 **
		4-6					1.00			1.00					1.00
		7+					0.81 ***			0.67 ***					0.88

Annex. Table C. Factors associated with knowledge, use and intention to use modern contraception in Ghana (DHS 2008).

Logistic regression. Value of the Exp of the β coefficient

	GHANA - WOMEN													
		KNOWLEDGE			EVER USE				INTENT			
endowments	**residence**											
	capital, large city	1.494		0.676		1.166	*	0.946		0.971		0.807		0.717	**
	small city+town	1.000		1.000		1.000		1.000		1.000		1.000		1.000	
	countryside	0.266	***	1.154		0.676	***	1.077		1.068		1.318	***	1.389	**
conversion factors	**ethnicity**														
	Akan			1.000				1.000		1.000				1.000	
	Ga/Dangme			0.454	*			1.282	*	1.279	*			0.881	
	Ewe			1.031				1.306	***	1.344	***			0.72	*
	Mole-Dagbani			0.587	*			1.248	**	1.337	***			0.909	
	Other			0.288	***			0.855		0.896				1.067	
	wealth quintile														
	poorest			0.328	***			0.643	***	0.637	***			1.084	
	poorer			0.767				0.847		0.84				0.95	
	middle			1.000				1.000		1.000				1.000	
	richer			1.494				1.136		1.155				0.949	
	richest			4.149	**			1.196		1.254	*			1.238	
	age group														
	15-19			0.373	***			0.632	***	0.63	***			1.232	
	20-29			1.000				1.000		1.000				1.000	
	30-39			1.4				1.052		0.979				0.63	***
	40-49			1.006				0.837	*	0.696	***			0.132	***
	marital status														
	married/living together			1.497				1.164		1.179				1.111	
	not married/divor/wid			1.000				1.000		1.000				1.000	
	family status														
	Household head			3.416	**			0.937		0.967				0.84	
	Spouse			0.908				0.963		0.982				1.021	
	Other			1.000				1.000		1.000				1.000	
	education														
	no education			0.425	***			0.551	***	0.54	***			1.014	
	some primary+primary			1.000				1.000		1.000				1.000	
	some sec+secondary+higher			1.995	**			1.139		1.193	**			1.181	
	occupation														
	not working			0.769				0.897		0.925				0.894	
	non-mannual			1.132				1.181	*	1.243	**			1.001	
	agriculture			1.000				1.000		1.000				1.000	
	manual			1.355				1.176		1.243	*			1.064	
parity	**# living children**														
	0-3									1.000				1.000	
	4-6									1.624	***			1.538	***
	7+									2.37	***			1.368	
preferences	**another child wanted**														
	none + undecided									0.825	**			0.854	
	within 2 yrs									0.693	***			0.768	*
	within 2+ yrs									1.000				1.000	
	want DK when									1.064				0.64	**
	ideal # children														
	0-3									0.991				1.196	
	4-6									1.000				1.000	
	7+									0.635	***			0.698	*

	GHANA - MEN								
		KNOWLEDGE			EVER USE				
endowments	**residence**								
	capital, large city	2.430		1.565		1.540	***	0.974		0.949	
	small city+town	1.000		1.000		1.000		1.000		1.000	
	countryside	0.416	***	1.200		0.406	***	0.935		0.938	
conversion factors	**ethnicity**										
	Akan			1.000				1.000		1.000	
	Ga/Dangme			0.120	***			1.447	**	1.446	**
	Ewe			0.107	***			1.476	***	1.509	***
	Mole-Dagbani			0.146	***			0.960		1.041	
	Other			0.118	***			0.819	*	0.874	
	wealth quintile										
	poorest			0.686				0.593	***	0.618	***
	poorer			0.821				0.903		0.913	
	middle			1.000				1.000		1.000	
	richer			1.545				1.329	**	1.295	**
	richest			0.861				1.971	***	1.886	***
	age group										
	15-19			0.336	***			0.482	***	0.480	***
	20-29			1.000				1.000		1.000	
	30-39			1.551				0.870		0.871	
	40-49			0.704				0.492	***	0.486	***
	50-59			0.292	**			0.356	***	0.340	***
	marital status										
	married/living together			2.172	*			0.900		0.873	
	not married/divo/wido			1.000				1.000		1.000	
	family status										
	Household head			1.834				0.809		0.821	
	Spouse			0.349				0.612		0.621	
	Other			1.000				1.000		1.000	
	education										
	no education			0.395	***			0.398	***	0.413	***
	some primary+primary			1.000				1.000		1.000	
	ɔme sec+secondary+higher			3.127	***			1.320	**	1.287	**
	occupation										
	not working			0.932				0.816		0.804	
	non-mannual			1.441				1.462	***	1.433	***
	agriculture			1.000				1.000		1.000	
	manual			0.988				1.293	**	1.266	**
parity	**# living children**										
	0-3							1.000		1.000	
	4-6							1.065		1.078	
	7+							0.882		0.973	
preferences	**another child wanted**										
	none + undecided									1.212	
	within 2 yrs									0.959	
	within 2+ yrs									1.000	
	want DK when									1.690	
	ideal # children										
	0-3									1.199	*
	4-6									1.000	
	7+									0.622	***

Annex. Table D. Factors associated with birth spacing

(Probability to be among the women with the longest tercile)

Logistic regression. Value of the Exp of the β coefficient [7] [8]

	MALI						GHANA				
	Interv Marriage - Birth		Interv 1st - 2nd Birth		Interv 2nd-3rd Birth		Interv Marriage - Birth		Interv 1st - 2nd Birth		
Contraception											
ever used	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
intent	0.933	1.039	0.777 ***	0.951	0.838 **	0.988	0.966	1.025	0.755 **	0.869	0.855
no intent	1.039	0.925	0.787 ***	0.904 *	0.928	1.033	0.941	0.926	0.807 **	0.911	0.841 *
ethnicity											
Bambara/Malinké	1.000	1.000	1.000	1.000	1.000	1.000	Akan	1.000	1.000	1.000	1.000
Peulh/Sonrai/Dogon/Tamachek	1.019	1.096	1.175 ***	1.146 **	1.005	0.960	Ga/Dangme	0.847	0.880	0.983	0.964
Other	1.112 **	1.148 **	1.118 **	1.108 *	0.937	0.917	Ewe	0.988	1.086	1.261 *	1.168
							Mole-Dagbani	1.332 **	0.887	1.364 **	1.225
							Other	1.186	0.823	1.217	1.155
wealth quintile											
poorest		1.145 **		0.979		0.877 *		0.986		0.748 *	0.788
poorer		1.083		0.990		1.056		0.915		0.838	0.868
middle		1.000		1.000		1.000		1.000		1.000	1.000
richer		1.289 ***		1.201 ***		1.097		0.999		1.302 *	1.254
richest		1.275 ***		1.488 ***		1.317 ***		1.009		0.917	0.814
education											
no education		1.149 *		0.819 ***		1.030		0.909		0.768 **	0.801 *
some primary+primary		1.000		1.000		1.000		1.000		1.000	1.000
some sec+higher		1.130		1.218 *		1.545 ***		1.091		1.242 *	1.097
occupation											
not working		0.822 ***		1.070		1.103		0.982		1.161	1.060
non-mannual		0.816 ***		0.981		1.000		0.911		1.086	1.006
agriculture		1.000		1.000		1.132 *		1.000		1.000	1.000
manual		0.883		0.912		1.154		0.956		1.402 **	1.238
age group											
15-19		0.537 ***		0.570 ***		0.299 **		0.431 **		0.352	0.296
20-29		1.000		1.000		1.000		1.000		1.000	1.000
30-39		2.394 ***		1.248 ***		1.132 **		1.613 ***		1.447 ***	2.088 ***
40-49		3.818 ***		1.371 ***		1.215 ***		1.780 ***		1.071	1.956 ***
age 1st marriage											
10-14		1.653 ***		1.118 **		1.125 **		1.970 ***		1.248	1.377 **
15-19		1.000		1.000		1.000		1.000		1.000	1.000
20+		0.526 ***		1.036		1.052		0.652 ***		1.184 **	1.086
# living children											
0-3		1.000		1.000		1.000		1.000			1.000
4-6		0.486 ***		0.632 ***		0.744 ***		0.545 ***			0.389 ***
7+		0.312 ***		0.426 ***		0.478 ***		0.241 ***			0.285 ***

[7] In Ghana, familialism diminishes the effect of ethnic group, high education and occupation which loose their statistical significativity.

[8] For all models, the control for ethnicity does not modify the effect of contraception.