Revisiting the African Fertility Exception

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Session 76 : The Future of Fertility in the Next 50 Years
Chair : Joseph Chamie, United Nations Population Division

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ABSTRACT

The onset of the fertility transition observed in several sub-Saharan countries in the 1990s has lead to think that African fertility might, over the next 50 years, catch up with lower levels of fertility experienced in the rest of the world. The authors attempt to demonstrate that, on the contrary, future fertility trends in Africa will diverge from those of the rest of the world, will probably remain above replacement levels and, moreover, will become more diverse within the region (the analysis is conducted for four sub-regions : Eastern, Middle, Southern, and Western Africa). The authors examine several features linked to the proximate determinants of fertility which taken alone explain these forthcoming trends even without considering the intermediate determinants of fertility. These factors are : the initial low levels and the slow increases of contraceptive prevalence rates ; the contraceptive usage mostly for birth spacing and not for birth limiting ; the dearth of quality reproductive health and family planning services ; and the lack of strong policy commitment toward the ideal of family planning and the setting up of efficient programs. Finally, the authors discuss four less documented factors, also linked to the proximate determinants, that will also undoubtedly affect fertility outcomes in the decades to come. These are : the low demand vs. poor supply vicious circle for the expansion of family planning services ; the role of traditional contraception in the fertility transition ; the importance of induced abortion in place of contraceptive method use ; and the impact of the HIV/AIDS epidemic on attitudes to family planning and fertility. The authors do not discuss the intermediate determinants of fertility, such as education or the status of women, which are also far from favorable in sub-Saharan Africa but where improvements are much needed if one wishes to accelerate the fertility transition.

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INTRODUCTION

Whereas fertility has declined rapidly over the last 50 years in most regions of the world, and has even reached below-replacement levels in Europe and parts of Asia (e.g. Japan, coastal China, the Caribbean, etc.), fertility remains very high in sub-Saharan Africa. Nevertheless, the onset of the fertility transition observed in several countries of the region in the 1990s has lead to think that Africa might, over the next 50 years, catch up with fertility levels experienced in the rest of the world. At the time, this phenomenon had even been called « the end of the African fertility exception ».

It is of the utmost importance for policy makers both within and outside the region to assess the future course of fertility in sub-Saharan Africa. First, fertility levels will determine for many decades to come the rate of the demographic growth in the continent. Second, fertility levels will also have enormous implications for the human capital investments (e.g. in education, health, and social protection) as well as for the foreign assistance flows that will be needed in the region (World Bank, 2000). Third, future rates of demographic growth will have far-reaching consequences on the issues of food security, land availability, and land tenure systems (Collomb, 1999 ; Guengant, 2001). Moreover, world populations projections calculated by international organizations and national statistical offices and which are a key tool for socio-economic development must also make assumptions on the future fertility levels, as a fundamental ingredient to cohort component computations. Therefore, the issue of fertility lies at the heart of any in-depth analysis of the future development prospects for sub-Saharan Africa.

This paper contends that fertility in sub-Saharan Africa will not reach the same levels within the next 50 years that are likely to be experienced in the other regions of the world and, therefore, will not decline as rapidly as it has been experienced elsewhere. The paper also argues that fertility levels within the sub-Saharan Africa region will become much more contrasted and diverse among the sub-regions of the continent than it is currently assumed (the analysis is conducted for four sub-regions : Eastern, Middle, Southern, and Western Africa).

The paper looks at four major features of the fertility patterns in sub-Saharan Africa that are linked to the proximate determinants of fertility and, taken alone, are seen as the major bottlenecks to achieve rapid decreases in fertility in the region. These factors are : (a) the current low levels of contraceptive use and the usage of contraception geared more at birth spacing than birth limiting ; (b) the very slow pace in increases of contraceptive prevalence rates ; (c) the dearth of quality reproductive health services, especially in the rural areas ; and (d) and the lack of strong policy commitment toward the ideal of family planning and the setting up of efficient programs. The paper also examines four less documented factors that will also undoubtedly affect future fertility outcomes, namely the low demand vs. poor supply vicious circle for the expansion of family planning services ; the role of traditional contraception in the fertility transition ; the importance of induced abortion in place of contraceptive method use ; and the impact of the HIV/AIDS epidemic on attitudes to family planning and fertility. However, this paper do not examine in detail other key intermediate determinants of fertility, such as the education levels, the status of women, and the health systems that have helped trigger rapid fertility declines in other parts of the world. These factors are still far from favorable in sub-

Saharan Africa and their improvement will also be key elements in accelerating the fertility transition in the region.

The paper will first review the so-called African fertility exception, that is why the levels of fertility in sub-Saharan Africa have been -- and have remained -- so high, and the prospects for the end of the African fertility exception. Thereafter, the paper will analyze the main factors linked to the proximate determinants of fertility and assumed to be impeding rapid fertility decreases in the region. The paper will also project future fertility scenarios using the FamPlan model. Finally, the paper will discuss other factors (also linked to the proximate determinants) that might influence future fertility trends in sub-Saharan Africa, including the HIV/AIDS epidemic.

THE AFRICAN FERTILITY EXCEPTION

It is a rather daunting task to provide, in just a few strokes and with limited data, a correct picture of the demographic trends and prospects in sub-Saharan Africa since the region is chiefly characterized by an astonishing diversity. Even when one focus on a single component of the demographic growth, namely the fertility patterns, attempts to generalize to the whole continent the various and sometimes conflicting trends from the many sub-regions and entities in sub-Saharan Africa appear to be an almost impossible task.

However, despite these caveats, it is safe to say that sub-Saharan societies and cultures have always put great emphasis on high fertility (Caldwell and Caldwell, 1987 ; Locoh, 1984). This can be explained easily by the hardships encountered traditionally by all African societies to achieve their mere reproduction. These are linked to the difficulties of the physical conditions, the very high levels of mortality (especially infant and child mortality), the high prevalence of primary and secondary sterility in many groups, and the terrible shocks such as the slave trade, the wars, the civil strife, and more recently the HIV/AIDS epidemic, that have affected and still affect many countries across the continent.

Numerous authors and scholars, such as the Caldwells, have consistently emphasized the traditional regime of fertility in sub-Saharan Africa that promotes higher fertility thanks largely to birth spacing through postpartum taboo and long period of breastfeeding aimed at ensuring the survival of the largest possible pool of children (Frank, 1987). These scholars have also stressed the many factors that tend to keep things as they are, namely the social, economic, and cultural obstacles that stand in the way of family size limitation in sub-Saharan Africa. Furthermore, the raising of children by parents other than the biological ones is viewed as an additional facilitating factor toward higher fertility outcomes. Last but not least, various specialists have emphasized the absence of rapid declines in infant and child mortality, that are perceived to be a pre-requisite to eventual declines in fertility (Bulatao, 1984). This plays out in a context where adult mortality has recently risen considerably due to the spread of the HIV/AIDS epidemic.

Given this situation, it was to be expected that attempts toward family planning and family size limitation would at best have achieved mixed results in the continent. Despite various efforts, fertility has not fallen dramatically and contraceptive prevalence still

remains very low, and even more so for modern methods. Although it remains difficult to ascertain whether this low contraceptive prevalence is due mainly to low demand or to poor supply of family planning services (May et al., 1990), the erosion of traditional fertility regimes seems to have taken much more time in sub-Saharan Africa than in other parts of the world. It has also been widely felt that this situation would prevail for quite some time in the future.

All these difficulties have led a number of specialists to craft the idea of an African fertility exception (Foote et al., 1993). This concept was meant not only to summarize all the factors that work against a rapid fertility decline in the region but also, and more importantly, to convey a sense of immobility, or at least of a very slow pace of change in the reproductive regimes of the continent. African fertility regimes were deemed traditional, hence it would take much longer, at least longer than the foreseeable future, to bring them in par with levels experienced in the rest of the world.

TOWARD AN END OF THE AFRICAN FERTILITY EXCEPTION ?

Despite socio-economic and cultural conditions that are conducive to sustained high fertility levels, one can assert that today Africa as a whole has experienced the beginning of a fertility decline during the last 15 years. The data that have enabled to evidence this phenomenon have been essentially (but not only) gathered through a vast round of Demographic and Health Surveys (DHS). Although some countries had been surveyed for the very first time, most surveys were indeed the second or even the third survey or more conducted in several countries, allowing the gathering of time-series data and the identification of trends in fertility and contraceptive use. In addition, the inclusion -- at long last -- of data from the Republic of South Africa has helped to get a more correct picture of the overall fertility and contraceptive use levels in sub-Saharan Africa (Cohen, 1998 ; Kirk and Pillet, 1998).

Nevertheless, in the light of these newly available data and the mounting evidence about the onset of a fertility decline in sub-Saharan Africa, scholars have perhaps been too quick to herald the end of the African fertility exception. Since sub-Saharan Africa as a whole was to a large extent a late- and for that matter a long awaited-comer into the fertility transition, the observed initial fertility declines might have been taken out of perspective. Consequently, observers have stressed the fact that the region was « coming out of the culture of high fertility » and that the fertility decline in sub-Saharan was bound to be more rapid than initially anticipated (Locoh and Makdessi, 1995).

In fact, the declines observed in total fertility rates as well as in fertility preferences in sub-Saharan Africa have mostly taken place in urban settings and/or among vanguard groups and rural areas have generally been lagging behind these trends (Cohen, 1998 ; Vimard and Zanou, 2000). Moreover, five specific features of sub-Saharan fertility that need to be stressed may help qualify the overall picture of a widespread fertility decline in the region. First, Southern and some Eastern sub-Saharan countries are much more advanced in their fertility transition than other parts of sub-Saharan Africa (i.e. Middle and Western Africa). Second, urban fertility levels are usually declining even in countries where overall fertility remains high (e.g. in Western Africa) and this in linked to later ages at marriage. Third, very high fertility in sub-Saharan Africa is becoming gradually a rural areas' phenomenon, mostly in Francophone countries. Fourth, unmet

needs for family planning services remain high, especially among adolescents, and both the union patterns and the social sanction of pregnancies are changing. Fifth, the HIV/AIDS epidemic could contribute to the decline in fertility, because *inter alia* of the effects of the epidemic on increased foetal losses (higher incidence of miscarriages) among HIV+ women.

Indeed, two main issues need to be addressed when analyzing the fertility trends in sub-Saharan Africa, especially when attempting to project current fertility declines into the future. First, the levels of fertility remain very high in the region : total fertility rates for sub-Saharan Africa as a whole are still close to 6 children per woman. Second, the pace of fertility declines are very slow : overall fertility has declined by 13% in sub-Saharan Africa over the past 15 years (United Nations, 2001). Although the downward trends in fertility observed in Southern Africa and some Eastern African countries has been much brisker (National Research Council, 1993), it should be kept in mind that these countries' populations represent a small proportion of the whole population of sub-Saharan Africa.

These two features, initial high levels of fertility and slow declines, are specific to the majority of fertility regimes in sub-Saharan Africa and therefore should be addressed before hastily heralding the end of the African fertility exception. Moreover, these features will have significant implications for future trends in African fertility as we will examine now through an analysis of the fertility proximate determinants.

FERTILITY PROXIMATE DETERMINANTS ANALYSIS

The influence of the various proximate determinants of fertility has been modeled by John Bongaarts (1978, 1982) who has proposed to analyze these determinants and their inhibiting impact on fertility by using four or five simple indices. These measures enable to decompose the relative impact on fertility outcomes of the following proximate determinants : exposure to the risk of conceiving (through living in union) ; use of contraception ; recourse to induced abortion ; length of postpartum infecundability (linked to postpartum abstinence and breastfeeding) ; and sterility. In this section, we will review some of the key proximate determinants of fertility, in particular those : (a) that will most likely bear the greatest impact on future levels and trends of fertility in sub-Saharan Africa ; and (b) that are most likely amenable to policy and programmatic interventions. Therefore, we will focus first on the use of contraceptive methods.

Demographic survey results available at the end of the year 2000 give fairly complete and recent information on contraceptive use in sub-Saharan Africa (United Nations, 1999a and U.S. Bureau of the Census, 2000). Data are available for 39 countries (out of a total of 49 countries), which account for about 90% of the total population of the region. Moreover, these data are quite recent, since only 4 of the surveys refer to the late 1980s, and 24 surveys were undertaken between 1995 and 1999, yielding 1995 as an average date for the data. However, data are scarce for Middle Africa and only 4 countries (out of 9) could be included in the analysis (see Annex, Table 1 A).

Table 1 shows the percentage of « married » women in reproductive ages (MWRA) (these are the women in union) that are currently using a contraceptive method. The results are presented for the four main sub-regions of Africa, namely Eastern, Middle,

Southern, and Western Africa. The data show that the overall use of contraception appears to be very low. Detailed results presented in the Annex (see Table 1 A) indicate that in only 9 countries in sub-Saharan Africa the use of contraception is over a quarter of the women in union. Moreover, the use of modern methods is much lower, given the importance of traditional and folk methods in most countries.

Another striking point of the results presented in Table 1 are the major differences found between the four sub-regions. First, contraceptive use among married women varies from nearly 50% for the Southern sub-region as a whole, to less than 10% in Middle and Western Africa. Next, in the two latter sub-regions, traditional and folk methods represent 70% and nearly half of all methods used, respectively. Given the inefficiency of some of these methods (gri-gri belts, coranic verses, etc.), this raises several questions. First, can the widespread use of traditional and folk contraceptive methods be taken as a clue of an emerging demand for family planning services (a demand which cannot be presently satisfied by the organized, health/clinic supply sector) ? Or is it the result of a large defiance against clinic supply methods ? One may consider also that the widespread use of traditional and folk contraceptive methods is consistent with the desire for a large family size, associated with adequate spacing between births. Under this assumption, the well-known failures of the traditional and folk methods may not be considered as a problem by the women (who have "tried" to space their children, but "God" or other forces have decided otherwise!).

Table 1 - Percentage currently using contraception among married women of reproductive age, by sub-region *

Sub-region (Number of countries Considered / total)	Average Year	Population in 2000		Clinic/supply Method	Traditional & others	Any Method	Percentage Traditional & Other methods
		(000)	in percent				
Eastern Africa (16 / 18)	1995	250 318	38.5%	13.0	5.1	18.2	28.2%
Middle Africa (4 / 9)	1995	95 404	14.7%	3.0	6.9	9.9	70.1%
Southern Africa (5 / 5)	1992	49 567	7.6%	45.6	1.5	47.1	3.2%
Western Africa (14 / 16)	1995	224 183	34.5%	5.1	4.4	9.4	46.4%
Sudan		31 095	4.8%	6.9	1.4	8.3	16.9%
Sub-Saharan Africa *		650 566	100.0%	11.0	4.7	15.7	29.8%

*Weighted average according to total population of the countries considered and sub-region

Sources : 1) United Nations, 2001 : Word Population Prospects : The 2000 Revision ;

2) United Nations, Levels and Trends of Contraceptive Use As Assessed in 1998, ESA/P/WP.155, United Nations : New York, 1999 ; and 3) U.S. Bureau of the Census, International, Data Base, Table 55. Prevalence of contraceptive use, by method and urban/rural residence.

Recent survey results also permit to document the slow growth in contraceptive use in Sub-Saharan Africa for the recent period. Available data make possible to ascertain increases in contraceptive use for 25 countries, representing about 70 percent of the total population of the region, for an average period of ten years, covering in most cases the late 1980s and the 1990s (see Annex, Table 2 A).

It is striking to note that about two thirds of the countries reviewed have registered annual percentage point growth of contraceptive use that are lower than 1. This is true for all methods taken together as well as for the use of clinic or supply contraceptive methods.

Again, the differences between the four sub-regions are staggering. For all methods, annual change of contraceptive use for Southern and Eastern Africa are slightly above 1 percentage point per year, whereas it is around half a percentage point for Western Africa and for Cameroon, the only country here representing Middle Africa. The average obtained for overall sub-Saharan Africa is quite modest for all the methods taken together as well as for the clinic and supply methods only (0.8 and 0.7 percentage point, respectively).

Table 2 – Annual change (percentage points growth) of current use of contraception among married women of reproductive age, various periods, by sub-region

Sub-region (Number of countries Considered / total)	Average date		Percent	Annual Change		Percentage
	1st Survey	2nd Survey	Of total pop. /Population 2000	Clinic & supply method	Any Method	Population Covered / Total population
Eastern Africa (9 / 18)	1987	1997	38.5%	1.1	1.3	59.2%
Middle Africa (1 / 9)	*1991*	*1998*	14.7%	0.4	0.5	15.6%
Southern Africa (4 / 5)	1982	1992	7.6%	1.1	1.0	98.1%
Western Africa (10 / 16)	1988	1996	34.5%	0.4	0.4	91.8%
Sudan	*1979*	*1993*	4.8%	*0.2*	*0.3*	
Sub-Saharan Africa *	1987	1996	100.0%	0.7	0.8	69.0%

*Weighted average according to total population of the countries considered and sub-region
Sources : 1) United Nations, Word Population Prospects : The 2000 Revision, 2001 ;
2) United Nations, Levels and Trends of Contraceptive Use As Assessed in 1998, ESA/P/WP.155, New York : United Nations, 1999 ; and
3) U.S. Bureau of the Census, International Data Base, Table 55. Prevalence of contraceptive use, by method and urban/rural residence.

If one turns now to the levels of fertility, it is important to note that higher estimates of fertility (which correspond to the lowest and slowest growing rates of contraceptive use just reviewed) have been incorporated in the 2000 Revision of the World Population Prospects recently released by the United Nations (United Nations, 2001). As a result, the fertility levels estimated for the 1995-2000 period are quite different, and for a number of countries significantly higher than those used in the 1998, 1996, and 1994 revisions of the population projections issued by the United Nations. Also, whereas in the previous runs of the projections, fertility levels were set, in most cases, to reach 2.1 children per women in the 2030s, in the 2000 Revision, 13 sub-Saharan countries are projected to still have total fertility rates above 2.1 children per women by the end of the projection period, i.e. 2045-2050 (see Annex, Table 3 A).

From these data, it is clear that fertility remain "very" high in most sub-Saharan African countries. For the 1995-2000 period, half of the 47 countries considered had a total fertility rate above 6 children per woman and 37 countries (nearly 4 out of 5) had a total fertility rate above 5 children per woman.

The picture is again very contrasted if one looks at the different sub-regions (Table 3). For the 1995-2000 period, the total fertility rates of the Eastern, Middle, and Western sub-regions were estimated to be at least 6 children per woman. For Middle Africa, the current estimate of 6.4 is above the estimate for the 1950-55 period. For Eastern and Western Africa, current estimates at around 6 children per women are nearly one child less than the

1950-55 estimates. Finally, only Southern Africa exhibits a current relatively low estimate : 3.3 children per woman (more than half of the 1950-55 estimate), reflecting a fertility transition that is well under way.

Table 3 - Estimated present (1995-2000) and future (2045-2050)
Total fertility rates in sub-Saharan Africa, by sub-region

Sub-region (Number of countries Considered / Total)	Total Fertility Rate		
	1950-1955	*1995-2000*	*2045-2050*
Eastern Africa (17 / 18)	6.92	6.09	2.51
Middle Africa (8 / 9)	5.91	6.41	2.46
Southern Africa (5 / 5)	6.45	3.29	2.10
Western Africa (16 / 16)	6.85	5.95	2.36
Sudan	--	4.90	2.10
Sub-Saharan Africa	6.68	5.77	2.42

Source : United Nations, Word Population Prospects : The 2000 Revision, 2001.

Current fertility levels are correlated with the levels of contraceptive use, which in turn are to a large extent the results of the family planning programs efforts carried out in each country. Family Planning programs effort-scores were established for the world in 1982, and measured again in 1989, 1994, and 1999 (Maudlin and Ross, 1996 ; Ross et al., 1999; and Ross and Stover, 2000). These effort-scores consist of 30 indices, derived from questionnaires comprising a rather large number of items. The effort-scores are grouped in four components or dimensions which are : Policies and stage-setting activities ; Service and service-related activities ; Record-keeping and evaluation ; and Availability of contraceptive supply and services. We will use the 1994 round, which is the closest in time to our other data (1995 is the average date for our contraceptive use data, as already mentioned).

According to this work, the family planning programs effort-scores in 1994 appear to range from modest to mediocre in most of the 30 sub-Saharan countries for which they were established (see Annex, Table 4 A). Indeed, the overall Program Effort Score, expressed as a percentage of the maximum attainable, is below the 50 percent mark for 22 of the 30 countries (i.e. 3 countries out of 4), reflecting less than expected or acceptable efforts geared at family planning programs.

Interestingly enough, sub-Saharan programs score much better for the Policies and stage-setting activities than for the other three components. In fact, whereas 22 countries are above the 50 percent mark for Policies and stage-setting activities, this is the case for only 7, 11, and 6 countries (out of 30 countries), respectively, for the scores related to Service and service-related activities, Record–keeping and evaluation, and Availability of contraceptive supply and services. This means that, whereas in most countries some degree of commitment does exist (through leaders statements, enactment of population policies, adoption of laws and regulations favoring imports and/or advertisement of contraceptives, etc.), in only a handful of countries are the services actually offered, the contraceptives available, and the programs adequately managed.

The successful countries, in terms of family planning, belong to the Southern Africa sub-region (with the exception of Lesotho) and three of these countries belong to the Eastern

Africa sub-region (Kenya, Mauritius, and Zimbabwe). In the Middle and Western Africa sub-regions, no country had in 1994 combined "Service" and "Availability" effort-scores above 50 per cent, and the same was true for the countries of the Eastern Africa sub-region, with the exception of Kenya, Mauritius, and Zimbabwe as already mentioned.

The most recent effort-scores, prepared for 1999 for 31 sub-Saharan countries, reflect that much less countries score below the 50 percent mark for the overall Program Effort Score (only 12 countries out of the 31 surveyed). This round demonstrates also that both service delivery and evaluation have improved markedly (explaining the better overall scores) whilst availability of services remains poor (6 countries only out of 31 score above the 50 percent mark, i.e. the same number as in 1994!). Finally, Ghana has joined the group of strong performers (namely, countries that score above 50 percent for combined "Service" and "Availability"), the first Western Africa country to do so (Ross and Stover, 2000).

This limited availability and accessibility of contraceptive services and commodities, and the associated poor quality of activities that are service-related to family planning, must be put into perspective with the demand for planning services in Sub-Saharan Africa. It has been pointed out that unmet needs for family planning are important in the region as a whole. Although this is correct, it is worth noting also that when one adds up current contraceptive use and unmet needs, the estimated total demand obtained is often around to 50 or 60 percent of women in union. These figures are noticeably inferior to those found in other parts of the world, where the total demand generally reach 70, 80 percent (and sometimes more) among the women in union. The lower sub-Saharan demand is probably the consequence of the fact that in sub-Saharan Africa the need for family planning is more for spacing than for limiting, which is associated with high numbers of desired children as expressed by African women in many surveys (Feyisetan and Casterline, 2000). Various cultural, social, and economic factors lie behind these preferences. One may argue, as this has been sometimes observed, that the demand for limiting will grow as the use of contraception rises and will eventually exceed the demand for spacing (Moreland and Guengant, 1994). As the result of this process, average number of desired children will decrease, in particular in countries where Information, Education, and Information (IEC) programs will be implemented to stress the health and socio-economic benefits of family planning as well as of smaller family size. However, for a variety of reasons (desire to conform to traditional values, fear of being criticized by religious and other opponents to family planning, etc.) governments officials, population policies leaders, health personnel, and the media, continue to put an exclusive emphasis on spacing and sometimes even condemn family planning for "limiting reasons", a curious denial of the freedom of informed consent and choice that are adopted separately by various governments of the region in numerous international conferences.

In the light of these comments, what can be said on future fertility levels in Sub-Saharan Africa ? These future levels will depend on a variety of factors, usually grouped into : 1) the proximate determinants ; and 2) the cultural, social and economic determinants. We will focus here on the proximate determinants using the FamPlan computer program developed be The Futures Group International (Stover and Heaton, 1999). Based on the "Bongaarts model" (Bongaarts, 1982), and starting from a "classic" (component method) demographic projection, FamPlan permits to evaluate the interrelationships between total fertility rates on one hand, and the proximate determinants of fertility as well as the method mix, the method effectiveness, etc., on the other.

Thus both demographic and FamPlan projections were run for each of the four sub-regions of sub-Saharan Africa, under various assumptions. The objective of this exercise was not to produce another set of projections, but to evaluate the interplay of the various factors at work in shaping the future fertility levels in each of the sub-regions of the continent (hence the simplistic or arbitrary nature of certain assumptions, warranted by the speculative purpose of the exercise). The values, by year 2000, of the various parameters used in these projections are presented in Table 4.

Table 4: Parameters used for running the FamPlan model

Sub-region	Eastern Africa	Middle Africa	Southern Africa	Western Africa
Total fertility rate, 2000	5.96	6.37	3.16	5.76
Contraceptive prevalence rate, 2000				
- Any method	20.0	10.0	55.0	12.0
- Modern methods	14.0	2.6	53.4	6.2
Method mix, 2000				
- Sterilization (female)	10	4	16	4
- Sterilization (male)	--	1	3	--
- Pill	32	6	27	21
- Injectables	17	4	38	9
- I U D	6	1	11	9
- Condoms	5	6	2	7
- Vaginal barrier methods	--	3	0	2
- Traditional, folk and other methods	30	75	3	48
Total	**100**	**100**	**100**	**100**
Other proximate determinants				
- Percent of women in union	65	65	45	70
- Postpartum insusceptibility (in months)	16	16	12	19
- Total abortion rate	0	0	0	0
- Sterility (%)	3	6	3	3

Sources (adapted from) : 1) United Nations, Word Population Prospects : The 2000 Revision, 2001 ;
2) United Nations, Levels and Trends of Contraceptive Use As Assessed in 1998,
ESA/P/WP.155, New York : United Nations, 1999 ; and
3) J. Ross, J. Stover, and A. Willard, Profiles for Family Planning and Reproductive Health Programs, Glastonbury, CT/Washington, DC : The Futures Group International, 1999.

The first scenario attempts to evaluate the contraceptive prevalence required to reach the 2050 fertility levels proposed by the 2000 revision of the United Nations World Population Prospects (medium variant), **provided** that all the other factors remain constant (i.e. method mix and the other proximate determinants of fertility). In this case, the dependant variable is the level of contraceptive use, according to the initial method mix for each sub-region (which is kept constant) as well as the other proximate determinants, over the entire 2000-2050 projection span.

Under these assumptions and to reach around 2.3 children per woman by year 2050 in the Eastern, Middle, and Western sub-regions, and 2.1 children per woman in the Southern sub-region, it appears that contraceptive use must encompass at least 70 percent of the women in union in each sub-region, but about 80 percent in the Western sub-region and 90

percent in the Middle sub-region. These results in the latter sub-regions are to a large extent caused by the high proportion of traditional methods used in these sub-regions, a proportion which has been maintained constant over the 2000-2050 projection period. Such a scenario may correspond to a marked increase in the demand for family planning, leading to universal use of contraception by year 2050 but associated with widespread recourse to traditional and folk methods of poor efficiency (except in the Southern sub-region).

Table 5: Results of the FamPlan model, scenario 1
TFR, United Nations medium variant (2000 Revision), method mix and other proximate determinants constant

Sub-region	Eastern Africa	Middle Africa	Southern Africa	Western Africa
Total fertility rate, 2000	5.96	6.37	3.16	5.76
Total fertility fate, 2050 UN Projections, 2000	2.37	2.26	2.10	2.34
Contraceptive prevalence rate 2000				
- Any method	20.0	10.0	55.0	12.0
Implied prevalence by				
2010	31.4	20.7	61.8	28.9
2020	45.4	39.0	67.2	47.7
2030	57.5	57.5	68.4	65.8
2040	67.8	75.2	69.1	76.7
2050	76.6	91.7	69.1	81.0
Annual percentage point increase in contraceptive use				
2000-10	1.1	1.1	0.7	1.7
2010-20	1.4	1.8	0.5	1.9
2020-30	1.2	1.8	0.1	1.8
2030-40	1.0	1.8	0.1	1.1
2040-50	0.9	1.7	0.0	0.4

However, in order to reach these high levels of contraceptive use, annual percentage point increases of more than one point are required for the Eastern, Middle, and Western sub-regions, for all periods except the last (2040-2050). For the Southern sub-region, where contraceptive use is already high in year 2000, the annual percentage point increases needed to match 2.1 children by 2050, are logically much more modest and declining.

For the Eastern sub-region, the one percentage point increases found under this scenario, appears consistent with what has been observed in this sub-region recently (see Table 2). This is not the case for the Middle and Western sub-regions where recent percentage point increases are around 0.5 point per year, hence the idea of testing various assumptions associated with percentage point increases maintained constant at 0.5 point per year over the 2000-2050 period.

Thus, under this second scenario, annual percentage point increases are set at 0.5 point, and the dependant variable is the total fertility rate. Under the first variant of this scenario (2a), the initial method mix for each sub-region as well as the other proximate determinants are kept constant over the whole period, i.e. 2000-2050 (Table 6).

Table 6: Results of the FamPlan model, scenario 2

Sub-region	Eastern Africa	Middle Africa	Southern Africa	Western Africa
Total fertility rate, 2000	5.96	6.37	3.16	5.76
Contraceptive prevalence 2000				
- Any method	20.0	10.0	55.0	12.0
Implied prevalence by				
2010	25.0	15.0	60.0	17.0
2020	30.0	20.0	65.0	22.0
2030	35.0	25.0	70.0	27.0
2040	40.0	30.0	75.0	32.0
2050	45.0	35.0	80.0	37.0
Annual percentage point				
increase in contraceptive use				
2000-50	0.5	0.5	0.5	0.5

Scenario 2a: Method mix and other proximate determinants constant

Total fertility rate, 2050				
Results of the model	4.37	5.11	1.28	4.52

Scenario 2b: Method mix as "Southern Africa" by 2025, constant thereafter
Other proximate determinants constant

Total fertility rate, 2050				
Results of the model	3.87	4.39	1.28	3.93

Scenario 2c: Method mix as "Southern Africa" by 2025, constant thereafter
Total abortion rate set to 1, other proximate determinants constant

Total fertility rate, 2050				
Results of the model	3.61	4.16	0.85	3.69

Scenario 2d: Method mix as "Southern Africa" by 2025, constant thereafter
Total abortion rate set to 1, Percent married set to 50 by 2025, constant thereafter for the Eastern, Middle, and Western sub-regions, PPI constant

Total fertility rate, 2050				
Results of the model	2.65	3.08	0.85	2.48

The first direct consequence of the initial assumption of a 0.5 point percentage point increase per year is that contraceptive use remains modest by 2050 in the Eastern, Middle, and Western sub-regions (namely, between 35 to 45 percent of the women in union). On the contrary, contraceptive use in Southern Africa reaches 80 percent under the same assumption, a figure higher than in scenario 1. These modest increases of contraceptive use **and** constant method mix and other proximate determinants for each sub-region, yield high total fertility rates in 2050, rates that are well above 4 children in the Eastern and Western sub-regions, and above 5 children in the Middle sub-region. Again, the Southern sub-region is different : its total fertility rate plunges to 1.3 child per woman, *a priori* an unlikely result (but who would have predicted 50 years ago that today fertility in Spain and Italy would be around this level ?). This assumption corresponds to the continuation of the present benign neglect, or uncommitted interest, to family planning programs from national authorities and leaders as well as donors, in Middle and

Western Africa, and to an hypothetical deterioration of the present situation in Eastern Africa.

Besides the assumption of a modest annual increase of contraceptive use, these results can be explained also by the importance of largely inefficient traditional and folk contraceptive methods in Eastern, Middle, and Western Africa. Hence, the idea of testing the impact of a gradual shift to modern methods for these three sub-regions. The additional assumption made under this new variant (scenario 2b) was to compute a gradual shift of the present method mix of the Eastern, Middle, and Western sub-regions to the Southern sub-region method mix, by year 2025, and to keep it unchanged thereafter, i.e. between 2025 and 2050. The Southern sub-region method mix is characterized by the importance of efficient methods (female and male sterilization and injectables account for nearly 60 percent of all methods), and the negligible importance of traditional and folk methods (only 3 percent of all methods). The use of the Southern sub-region method mix for the other sub-regions is of course somewhat arbitrary. But it was tested with the purpose of evaluating, over a 25 years period, the effects of a shift from widespread use of inefficient methods to more efficient ones.

Interestingly enough, the total fertility rates obtained under this variant are around 4 children per woman, that is between 0.5 to 0.7 child less than those obtained under the previous scenario (2a). This underlines the importance of the contraceptive method mix in shaping fertility levels, all other factors remaining constant. This variant corresponds to the launching of major efforts from local authorities and donors to offer a satisfactory range of efficient methods to those in need of family planning, in a context where the demand for such services is still modest and growing slowly (by 0.5 percentage point per year).

Another variant can be made, assuming that in addition to the previous factors, abortions that are already performed will continue to be practiced on a significant scale. Hence, an additional assumption of a total abortion rate of 1 was made only as an add-up to the previous scenarios. This figure was chosen arbitrarily after examination of the abortion rates available for a variety a countries (Ross et al., 1999). The total fertility rates obtained under this variant (2c) is 0.2 to 0.4 child lower than is the previous variant, meaning that the impact of abortion at that level is not negligible but not significant either, except in the case of the Southern sub-region were fertility levels are already low.

A last variant was made, in reducing for the Eastern, Middle, and Western sub-regions the presently rather high proportion of married women, from their present levels to 50 percent by year 2025, and to keep this proportion constant thereafter. The total fertility rates obtained under this variant (2d) appears more modest than under the previous variants : namely, 3.1 children for Middle Africa, 2.7 for Eastern Africa, and 2.5 for Western Africa. Interestingly enough, they are quite close to the United Nations most recent estimates (medium variant) for Eastern and Western Africa, but still much higher for Middle Africa. As marriage or union patterns are the results of complex social processes, one may suppose that an important decrease in the percentage of the women in union corresponds to major social changes which may be induced by a variety of factors such as urbanization, prolonged situation of civil war or social unrest, large migration movements that follow prolonged droughts, etc., which are all very hard to predict and largely out of the "program efforts" agenda.

To summarize, it is clear that future fertility in sub-Saharan Africa will be determined by a large array of factors. The fertility transition is obviously well engaged in the Southern part of the continent, but its pace might be slow in the other sub-regions. It is not excluded that total fertility rates will reach below replacement levels in Southern Africa, but it appears unlikely that total fertility rates will reach replacement levels in the other three sub-regions. Indeed, total fertility rates in these sub-regions may range roughly between 2.5 to 4.5 or even 5 children per woman, and the situation will be even more diversified at the country level. In terms of policy choices, the challenges associated with theses uncertainties are tremendous. Should programs (e.g. in education, gender, health, reproductive health, post-conflict management, etc.) be geared primarily to adjust to the presently rather slow fertility transition, noticeably in Middle and Western Africa ? Will the recent patterns give place to new ones, leading to an accelerated "poverty driven" type of fertility transition, meaning that individuals and couples will find by themselves the ways to adjust to population pressures and hardship at the household level ? Or will a renewed interest emerge within the policy makers in the region to design comprehensive programs to address, now and in the future, the problems of rapid population growth and high fertility in sub-Saharan Africa ? Finally, is there on the contrary a need for an externally driven push to generate a much stronger commitment to tackle these important issues ?

DISCUSSION

The review of the levels of contraceptive use, the rates of increase in contraceptive prevalence rates, the family planning effort-scores, and the resulting fertility projections for sub-Saharan Africa, has highlighted several issues that are less documented but that will undoubtedly influence future fertility outcomes in the region. These are : the low demand vs. poor supply vicious circle for the expansion of family planning services ; the role of traditional contraception in the fertility transition ; the importance of induced abortion in place of contraceptive method use ; and the impact of the HIV/AIDS epidemic on attitudes to family planning and fertility.

The low demand vs. poor supply vicious circle for the expansion of family planning services is particularly hard to assess. On one side, the demand for family planning services is still rather low in sub-Saharan Africa as shown by the fertility preferences. On the other side, supply remains very poor and generally suffers also from the poor status of the health systems. In a nutshell, the low demand for family planning does not encourage the launch of major efforts to expand programs whereas the poor quality of the services currently offered is in no way conducive to boost the demand for services.

The FamPlan analysis enables us to better understand some of the key elements in this vicious circle. First, the FamPlan analysis demonstrates that a 0.5 percentage point increase per year in contraceptive prevalence alone is not enough to trigger a substantial fertility decline in sub-Saharan Africa. The analysis also stresses the fundamental importance of the contraceptive method mix and therefore the role of the supply of services. Finally, the FamPlan model shows that the fertility outcomes are not substantially modified even with an important recourse to induced abortion. Even when using the assumption that every woman would have 1 induced abortion during her reproductive years, this does not change very much the overall fertility picture.

In turn, the importance of the contraceptive method mix points to the role of traditional and folk methods. These methods still represents a very large share in contraceptive use in many sub-Saharan countries. Again, a shift to modern, more efficient methods will be necessary if the region is to experience important reductions in fertility in the future. However, more research will need to be conducted in the following areas : the relative efficacy of the various traditional methods, since some can be more efficient than other ; the macro-demographic efficacy of all traditional methods taken together ; and the mechanisms that lead individuals and couples to switch from traditional to modern methods.

The failure of many traditional and folk contraceptive methods and the weaknesses in the mechanisms to supply modern ones bring us to the role of induced abortion. Although this phenomenon is very hard to measure because of the lack of data, recent evidence indicates the rapid emergence of this phenomenon, for instance in Western Africa (Desgrées du Loû et al., 1999). Indirect measurements of the inhibiting effect of induced abortion on fertility indicate : (a) the significant effect of this proximate determinant in many sub-Saharan Africa countries ; and (b) the disturbing fact that in several countries induced abortion plays a more important role in inhibiting fertility than does contraceptive use (Johnston and Hill, 1996). Unfortunately, induced abortions are most often poorly performed in sub-Saharan, lead to higher ratios of maternal mortality, and may lead also to higher incidence of other medical conditions (e.g. secondary sterility). It is therefore imperative from a health rationale to promote policies that will minimize the recourse to induced abortion.

These three issues, namely the demand-supply vicious circle, the role of traditional contraception in the fertility transition, and the importance of induced abortion call for a renewed policy commitment in sub-Saharan to stress among individuals and couples the concept of free access to contraceptive methods as well as their freedom to decide on the size of their family.

Although most sub-Saharan countries have now adopted the agenda that was discussed at the International Conference on Population and Development (ICPD) in Cairo in September 1994, a large number of the population policies adopted prior to Cairo, and often revised afterwards, have not progressed much beyond the mere recognition of the population and development problems. Implementation of these policy statements has often been left to bureaucratic bodies (e.g. population commissions). Although the latter have been somewhat active in the capital cities, most often few activities have been conducted outside the main cities and in the rural areas. In addition, the lack of vision, drive, and coordination has precluded the programs from delivering effective family planning services. Furthermore, the broadening of the classic approach into a larger reproductive health agenda (including *inter alia* reduction of maternal mortality reduction, eradication of excision, mitigation of domestic female violence, etc.) has also sometimes contributed to a lack of focus on family planning services.

An additional and dramatic issue that will also affect attitudes to family planning and fertility outcomes is the HIV/AIDS epidemic. At this stage in the epidemic, we can only make assumptions on some of its potential impacts. Regarding the attitudes toward family planning, the HIV/AIDS epidemic is likely to increase the use of condoms but might strongly discourage the recourse to contraceptives among the couples who want to have offspring. Regarding fertility, the epidemic will probably decrease the frequency of

intercourse among HIV/AIDS infected persons. The epidemic might also increase the infecundability and cause more foetal losses (miscarriages or spontaneous abortion) (Zaba and Gregson, 1998).

However, it should be stressed that it is not easy : (a) to decompose the effects of the HIV/AIDS epidemic between the attitudes to family planning and the fertility outcomes ; and (b) to measure which impacts will have an upward effect and which ones will play a decreasing role on either the attitudes to family planning and/or the fertility. More data collection and analysis are therefore needed to understand how the HIV/AIDS will affect these variables. Nevertheless, the HIV/AIDS epidemic could bring to test the validity of the classic theory of demographic transition in sub-Saharan Africa because of : (a) much higher levels in overall mortality ; and (b) the high AIDS mortality rates among young women of reproductive age. The demographic transition in the region could well become a "half-through" transition, or even perhaps in some places a "reverse" transition, where mortality levels increase and fertility levels decrease to an intermediate level. Ultimately, the two crude death and birth rates could possibly reach an equilibrium at an intermediate level, eventually reducing sharply the natural rate of population growth. However, whether this will happen at the regional, sub-regional, and/or country levels remain to be seen.

Finally, this paper does not address the impact of other key intermediate determinants in the fertility transition process, namely the education, the status of women, the urbanization patterns, and the better health outcomes. Regarding a major factor among these determinants, i.e. primary education, it should be pointed out that primary attainment levels are also far from favorable in sub-Saharan Africa but are a critical element in shaping attitudes to fertility (Lloyd et al., 2000). As far as urbanization is concerned, it will probably help the diffusion of new attitudes toward family size and the use of contraceptive methods (World Bank, 2000). Nevertheless, it could be argued that levels of urbanization, especially in Western and Middle Africa, are still low. Since rural populations will continue to grow (contrary to what will happen in other parts of the world ; see United Nations, 2000), the potential increase in contraceptive use induced by the urbanization process will be slowed down.

CONCLUSION

At the end of this review of the possible trends of sub-Saharan Africa fertility over the next 50 years, three major conclusions can be formulated.

First, when sub-Saharan fertility declines were initially recognized in the early 1990s, it had been assumed that they would be important and fairly rapid. It was also assumed that they would take place rather uniformly throughout the continent. The latest available data offer an opportunity to qualify this picture. Although fertility declines have started and will continue to occur in sub-Saharan Africa, these declines may be more modest than initially anticipated and will probably be achieved over longer periods of time than first predicted. Furthermore, fertility declines will not occur at the same pace everywhere in sub-Saharan Africa. In this respect, it appears that for many more decades the fertility decline in West and Middle Africa will lag behind the declines that already took place in Southern and to a lesser extent in Eastern Africa.

Second, the data available permit to highlight several bottlenecks linked to the proximate determinants of fertility that will make very unlikely a fast progression of sub-Saharan Africa through a rapid fertility transition. For instance, increases in contraceptive prevalence rates per year will probably be closer to 0.5 than 1 percentage point, especially in Western and Middle Africa. That is lower than the levels of increase that have triggered the onset of fertility decline in Southern Africa and in some countries of Eastern Africa. It is also much lower than the levels of increase that have led many Asian countries through their fertility transition. The demand for birth spacing and birth limiting may also lag in sub-Saharan Africa, making a supply-driven approach to fertility control less likely to achieve successes in that part of the world. In addition, major socio-economic determinants that are needed for the fertility declines to fully play out in sub-Saharan Africa should be strengthened, such as primary universal education and improved status and job opportunities for women. Urbanization will also help accelerate the fertility transition, but only up to a certain point.

Third and last, four other factors that will influence fertility (and that are also linked to the proximate determinants) need further analysis. First, the current demand-supply tandem for family planning services in sub-Saharan is not conducive to a rapid expansion of contraceptive use levels. To change this, both comprehensive IEC campaigns and the expansion of well-managed clinic/supply services will be required. Second, the efficacy of traditional contraceptive methods is not well known in sub-Saharan Africa. However, it seems that a shift to modern and effective methods is needed to ensure contraceptive security to women and couples who genuinely want to plan their family. Third, the rapid rise of induced abortion may lower fertility further than currently expected. This is likely to be the result of the lack of adequate family planning services and have harmful consequences, hence the need to avoid as much as possible recourse to abortion, through adequate provision of family planning services. And, last but not least, the HIV/AIDS epidemic will also most likely influence fertility through possible lessened fecundability and/or the rise in the levels of spontaneous abortions (miscarriages), hence the need to pursue comprehensive IEC preventive programs.

To sum up, it is suggested that the demographic transition, and in particular its fertility-related dimensions linked to the proximate determinants, will continue to be somewhat unpredictable in sub-Saharan Africa. In addition, the region will also become more diverse and fragmented into sub-regional fertility patterns. Many unknown factors remain in the equation : the most important are the political commitment of local actors and the donors' community toward the provision of family planning services and the potential influence of the HIV/AIDS epidemic on fertility outcomes.

ANNEXES

Table 1 A - Percentage currently using contraception among
Married women of reproductive age, various dates, per country and sub-region

Country	Survey Year	Clinic/supply method	Traditional & others	Any Method
EASTERN AFRICA				
Burundi	1987	1.2	7.5	8.7
Comoros	1996	11.4	9.6	21.0
Eritrea	1995	4.0	1.0	5.0
Ethiopia	1990	2.6	1.7	4.3
Kenya	1998	31.5	7.5	39.0
Madagascar	1997	9.7	9.7	19.4
Malawi	1996	14.4	7.5	21.9
Mauritius	1991	48.9	25.8	74.7
Mozambique	1997	5.1	0.5	5.6
Reunion	1990	61.7	4.9	66.6
Rwanda	1996	7.2	6.5	13.7
Tanzania	1999	15.3	6.4	21.7
Uganda	1995	7.8	7.0	14.8
Zambia	1996	14.4	10.6	25.0
Zimbabwe	1999	49.4	4.1	53.5
MIDDLE AFRICA				
Cameroon	1998	7.0	12.3	19.3
Central African Republic	1994/95	3.3	11.5	14.8
Chad	1996-97	1.3	2.6	3.9
Congo (Dem. Rep.)	1991	2.0	5.7	7.7
SOUTHERN AFRICA				
Botswana	1996	40.5	1.2	41.7
Lesotho	1991/92	18.9	4.3	23.2
Namibia	1992	26.0	2.9	28.9
South Africa	1988	48.4	1.3	49.7
Swaziland	1988	17.2	2.7	19.9
WESTERN AFRICA				
Benin	1996	3.4	13.0	16.4
Burkina Faso	1998-99	4.9	7.0	11.9
Cape Verde	1998	46.0	6.9	52.9
Côte d'Ivoire	1998-99	7.2	7.8	15.0
Gambia	1990	6.7	5.1	11.8
Ghana	1998	12.9	9.2	22.1
Guinea	1992/93	1.0	0.7	1.7
Liberia	1986	5.5	0.9	6.4
Mali	1995/96	4.5	2.2	6.7
Mauritania	1990	1.2	2.1	3.3
Niger	1998	4.6	3.6	8.2
Nigeria	1990	3.5	2.5	6.0
Senegal	1997	8.1	4.8	12.9
Togo	1998	6.9	16.6	23.5
Sudan (North)	1992/93	6.9	1.4	8.3

Sources : 1) United Nations, Levels and Trends of Contraceptive Use As Assessed in 1998, ESA/P/WP.155, New York : United Nations, 1999 and 2) U.S. Bureau of the Census, International Data Base, Table 55. Prevalence of contraceptive use, by method and Urban/rural residence.

Table 2 A – Annual change (percentage point growth) of current use of contraception among married women of reproductive age, various periods, by country and sub-region

Country and region	Date of 1st survey	Date of 2nd survey	Nber of years	Percentage MWRA using Clinic/supply method 1st survey	Percentage MWRA using Clinic/supply method 2nd survey	Percentage MWRA using Any method 1st survey	Percentage MWRA using Any method 2nd survey	Annual Growth (Pct point) Clinic/Sup. method	Annual Growth (Pct point) Any method
EASTERN AFRICA									
Kenya	1988/89	1998	10	17.8	31.5	26.9	39.0	**1.4**	*1.3*
Madagascar	1992	1997	5	5.1	9.7	16.7	19.4	**0.9**	*0.5*
Malawi	1984	1996	12	1.1	14.4	6.9	21.9	**1.1**	*1.3*
Mauritius	1975	1991	16	29.2	48.9	45.7	74.7	**1.2**	*1.8*
Rwanda	1983	1996	13	0.8	7.2	10.1	13.7	**0.5**	*0.3*
Tanzania	1991	1999	8	6.6	15.3	10.4	21.7	**1.1**	*1.4*
Uganda	1988/89	1995	7	2.5	7.8	4.9	14.8	**0.8**	*1.5*
Zambia	1992	1996	4	8.9	14.4	15.2	25.0	**1.4**	*2.5*
Zimbabwe	1988/89	1999	11	36.1	49.4	43.1	53.5	**1.3**	*1.0*
MIDDLE AFRICA									
Cameroon	1991	1998	7	4.3	7.0	16.1	19.3	**0.4**	*0.5*
SOUTHERN AFRICA									
Botswana	1984	1996	12	18.6	40.5	27.8	41.7	**1.8**	*1.2*
Lesotho	1977	1991/92	15	2.4	18.9	5.3	23.2	**1.1**	*1.2*
Namibia	1989	1992	3	26.3	26.0	26.4	28.9	**0.0**	*0.8*
South Africa	1975/76	1988	13	35.0	48.4	37.0	49.7	**1.1**	*1.0*
WESTERN AFRICA									
Benin	1981/82	1996	15	0.5	3.4	9.2	16.4	**0.2**	*0.5*
Burkina Faso	1993	1998-99	6	4.2	4.9	7.9	11.9	**0.1**	*0.7*
Côte d'Ivoire	1994	1998-99	5	4.2	7.2	11.4	15.0	**0.7**	*0.8*
Ghana	1988	1998	10	5.2	12.9	12.9	22.1	**0.8**	*0.9*
Mali	1987	1995/96	9	1.3	4.5	4.7	6.7	**0.4**	*0.2*
Mauritania	1981	1990	9	0.3	1.2	0.8	3.3	**0.1**	*0.3*
Niger	1992	1998	6	2.3	4.6	4.4	8.2	**0.4**	*0.6*
Nigeria	1981/82	1990	9	0.6	3.5	4.8	6.0	**0.3**	*0.1*
Senegal	1986	1997	11	2.4	8.1	11.3	12.9	**0.5**	*0.1*
Togo	1988	1998	10	3.0	6.9	12.1	23.5	**0.4**	*1.1*
Sudan (North)	1978/79	1992/93	14	3.7	6.9	4.6	8.3	**0.2**	*0.3*

Sources (adapted from) : 1) United Nations, Levels and Trends of Contraceptive Use As Assessed in 1998, ESA/P/WP.155, New York : United Nations, 1999 ;

2) U.S. Bureau of the Census, International Data Base, Table 55. Prevalence of contraceptive use, by method and urban/rural residence.

Table 3 A – Estimated present (1995-2000) and future (2045-2050)
Total fertility rates in sub-Saharan Africa, by country and sub-region

Country and region	Total fertility rate	
	1995-2000	*2045-2050*
EASTERN AFRICA		
Burundi	6.80	2.81
Comoros	5.40	2.10
Djibouti	6.10	2.10
Eritrea	5.70	2.10
Ethiopia	6.75	2.80
Kenya	4.60	2.10
Madagascar	6.10	2.10
Malawi	6.75	2.63
Mauritius	2.00	1.90
Mozambique	6.30	2.10
Reunion	2.30	1.90
Rwanda	6.20	2.10
Somalia	7.25	3.27
Tanzania	5.48	2.10
Uganda	7.10	2.85
Zambia	6.05	2.10
Zimbabwe	5.00	2.10
MIDDLE AFRICA		
Angola	7.20	3.26
Cameroon	5.10	2.10
Central African Republic	5.30	2.10
Chad	6.65	2.35
Congo	6.29	2.33
Congo (Dem. Rep.)	6.70	2.36
Equatorial Guinea	5.89	2.10
Gabon	5.40	2.10
SOUTHERN AFRICA		
Botswana	4.35	2.10
Lesotho	4.75	2.10
Namibia	5.30	2.10
South Africa	3.10	2.10
Swaziland	4.80	2.10
WESTERN AFRICA		
Benin	6.10	2.10
Burkina Faso	6.89	2.82
Cape Verde	3.56	2.10
Côte d'Ivoire	5.10	2.10
Gambia	5.20	2.10
Ghana	4.60	2.10
Guinea	6.27	2.10
Guinea-Bissau	5.99	2.10
Liberia	6.80	2.81
Mali	7.00	2.85
Mauritania	6.00	2.10
Niger	8.00	3.82
Nigeria	5.92	2.10
Senegal	5.57	2.10
Sierra Leone	6.50	2.34
Togo	5.80	2.10
Sudan	4.90	2.10

Source : United Nations, Word Population Prospects : The 2000 Revision, 2001.

Table 4 A - 1994 Programs Effort Scores, Total and Four Dimensions Scores
as percentage of maximum, by country and sub-region

Country and sub-region	Total Score	Dimension Scores			
		Policy	Services	Evaluation	Availability
EASTERN AFRICA					
Ethiopia	39	61	35	34	18
Kenya	56	48	56	61	63
Madagascar	33	45	35	32	13
Malawi	44	52	44	60	27
Mauritius	75	78	66	98	78
Mozambique	33	47	27	32	30
Tanzania	48	54	45	44	45
Uganda	44	52	45	30	39
Zambia	41	56	35	37	37
Zimbabwe	68	69	71	82	52
MIDDLE AFRICA					
Angola	24	37	16	32	23
Cameroon	49	54	48	45	47
Central African Republic	40	55	40	35	23
Chad	27	47	23	40	1
Congo	27	48	24	41	0
SOUTHERN AFRICA					
Botswana	66	65	62	58	80
Lesotho	44	64	34	41	38
Namibia	43	60	28	26	60
South Africa	56	57	52	48	66
WESTERN AFRICA					
Benin	37	37	40	40	31
Cote d'Ivoire	39	54	31	54	25
Ghana	52	65	52	45	41
Guinea	50	66	49	64	24
Guinea-Bissau	36	58	25	20	35
Mali	45	54	51	62	11
Mauritania	32	32	37	50	10
Niger	46	60	45	60	22
Nigeria	42	64	33	30	34
Senegal	50	69	44	61	35
Sierra Leone	47	51	49	41	41

Source : J. Ross, J. Stover and A. Willard, Profiles for Family Planning and Reproductive Health Programs, Glastonbury, CT/Washington, DC : The Futures Group International, 1999.

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