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Prospects for Accelerated Fertility Decline in Africa

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Abstract

The future size of world population depends critically on what happens in sub-Saharan Africa, the one remaining region with high fertility and rapid population growth. The United Nations envisages a continuing slow pace of fertility change, from five births per woman today to three by mid-century, in which case the population of the region will increase by over one billion. However, an accelerated decline is feasible, particularly in east Africa. The main grounds for optimism include rising international concern and funding for family planning (after fifteen years of neglect), and favourable shifts in the attitudes of political leaders in Africa. The examples of Ethiopia and Rwanda show political will and efficient programmes can stimulate rapid reproductive change.

Keywords: Africa, population projections, fertility, desired family sizes, population policies.

Introduction

The future of the world's population depends on many factors that are impossible to predict with certainty. A devastating pandemic is a distinct risk. The 1918 flu pandemic is estimated to have killed about 4% of the world's population. A repetition today would imply the death of 280 million, a huge number but one that represents only about four years of growth at current rates. Another possibility

that would have a profound impact on future population growth is a substantial rise in China's low birth rate in response to the ending of the One-Child policy. But the biggest uncertainty is the future of fertility in sub-Saharan Africa, the one remaining region with high birth rates and rapid population growth. Compared with projections based on an assumption of a continued gentle decline, an accelerated decline in fertility would reduce Africa's projected population size by 200 million by mid-century, rising to 800 million by the end of the century (Gerland, Biddlecom and Kantorova 2016).

The central aim of this paper is to analyse the prospects for future fertility change in sub-Saharan Africa. This will require an examination of past trends, an attempt to understand the factors underlying the persistence of high fertility and the conditions favourable to decline, and identification of policies and programmes that can most effectively change the future course of childbearing.

Projected population growth, 2015–2050

Table 1 shows the most recent medium (ie most likely) population projections up until mid-century published in 2015 by the United Nations Population Division. Longer-term projections exist but are highly speculative because they have to make assumptions about the childbearing of individuals not yet born. Over a horizon of a few decades, UN projections have a good record of predictive validity at global and regional levels. While by no means immutable, they deserve to be taken seriously.

Table 1 shows an expected increase in global population of 2.4 billion between 2015 and 2050. The growth comes very largely from two regions, Asia with an extra 870 million and sub-Saharan Africa with 1.2 billion. The proportionate increases in these two regions, however, are very different. In Asia, the projected increase is a mere 20%, about the same as expected in northern America, largely because of assumptions of continuing in-migration, and lower than in Latin America or north Africa. The large increment of 870 million in Asia is mainly a reflection of that region's huge base population size. By contrast, the population of sub-Saharan Africa is projected to more than double in size, an increase of 120%. Whatever happens in regions other than Asia and sub-Saharan Africa will make precious little difference to the global total in mid-century. Differential growth has had and will continue to have a profound effect on the regional balance of population.

In 1950, sub-Saharan Africa accounted for only 7% of world population. By 2050, this fraction will likely rise to 22%. Over the same 100 years, Europe's contribution is the exact mirror opposite, a decline from 22% to 7%.

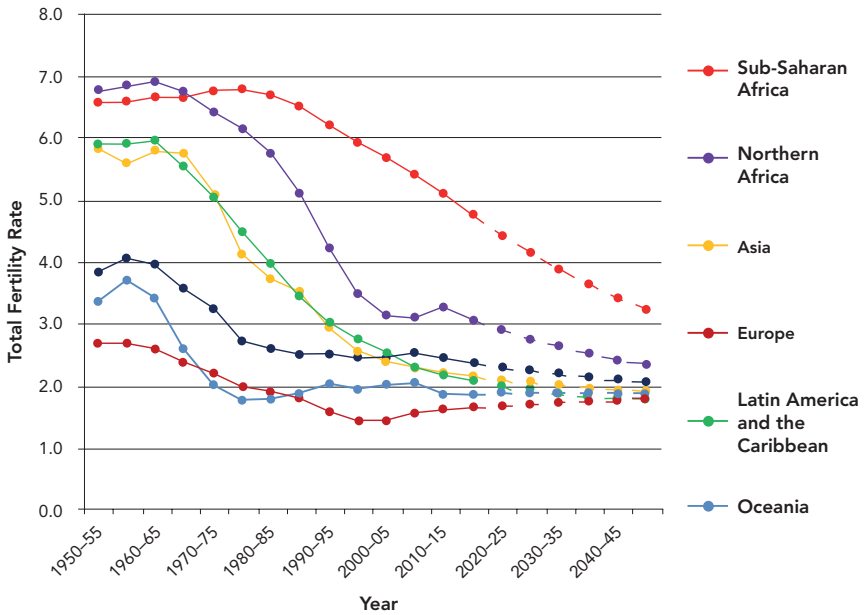
Table 1: Population Growth, 2015–2050, by region

Region	Population size (millions)		Absolute change (millions)	Percent change
	2015	2050	2015–2050	2015–2050
Europe	738	707	-31	-4
Northern America	358	433	75	21
Asia	4393	5267	874	20
Latin America/Caribbean	634	784	150	24
Oceania	39	57	18	46
North Africa	224	354	131	58
Sub-Saharan Africa	962	2123	1161	121
World	7349	9725	2376	32

SOURCE: UNITED NATIONS. 2015 WORLD POPULATION PROSPECTS: THE 2015 REVISION

The main drivers of population growth are fertility and age structure: the higher the proportion of population in the reproductive age span, the higher will be the birth rate at the same level of childbearing per woman. Figure 1 shows past and projected fertility for the same seven regions as in Table 1. In the 1950s, fertility in the four poorer regions was similar, in the range of six to seven births per woman. In Asia and Latin America, sharp declines started in the 1960s and fertility is now close to two births per woman, the replacement level that in the long term ensures population stability. Population growth continues mainly because of a conducive age structure. In its projections the United Nations assumes a continuing fall in fertility to below replacement. In the Arab states of north Africa the drop in childbearing also started in the 1960s and the United Nations assumes a continuing fertility decline, from a little over three births today to close to replacement by mid-century. In sub-Saharan Africa, decline started later and proceeded at a slower pace than elsewhere. The UN assumes that the gentle decline will continue from the current level of about five to about three births by 2050.

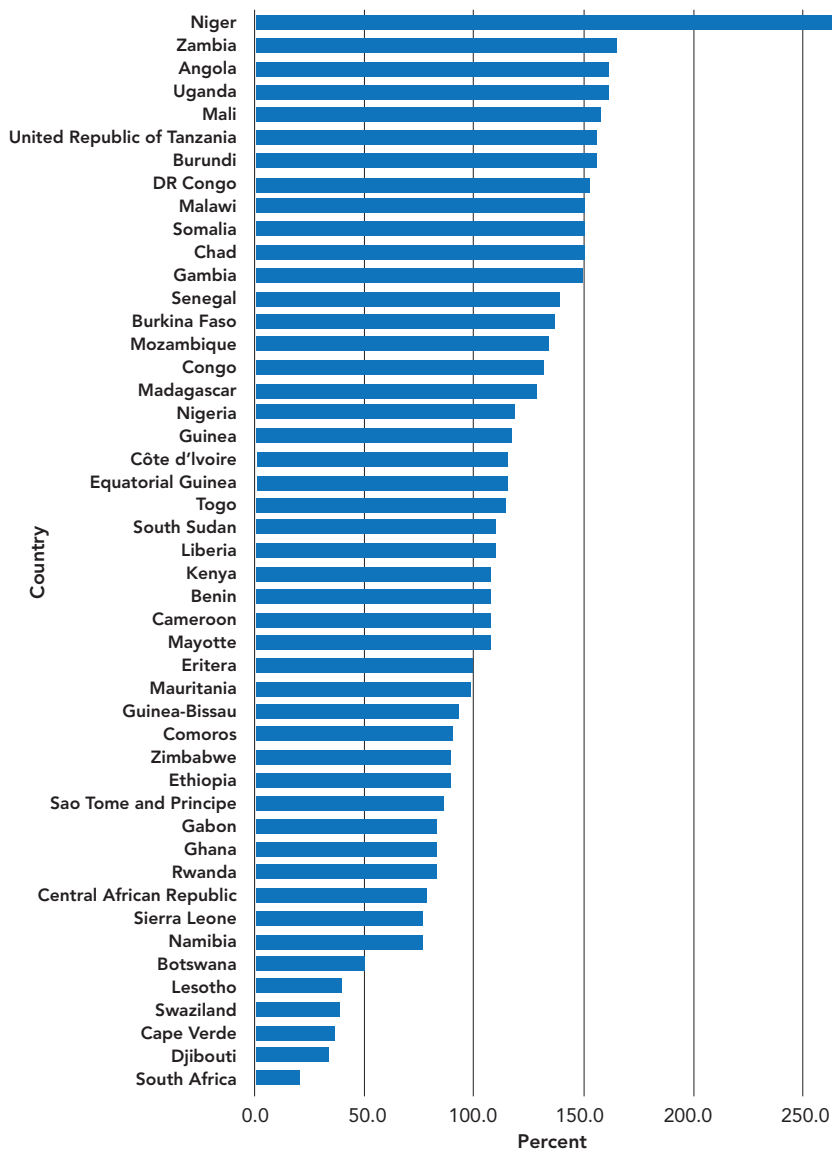
Figure 1: Trend of total fertility rate by world region, 1950–2050



SOURCE: UNITED NATIONS.2015 WORLD POPULATION PROSPECTS: THE 2015 REVISION

Of course, these regional averages disguise country variations. In Asia, the main exceptions to prevailing low fertility and population growth are Afghanistan, Iraq and Yemen where the child-bearing level is still around four births. Fertility also remains above three in Pakistan's substantial population. In sub-Saharan Africa, fertility ranges from close to replacement in the Republic of South Africa to over seven births per woman in Niger. This variability is expressed in Figure 2 in terms of projected percent increase in population between 2015 and 2050. Figure 2 makes clear that most countries in Africa are expected to experience a doubling of population, or more, in the next 35 years. Only 11 of the 46 countries are projected to grow by appreciably less than 100%.

Figure 2: Percent increase in population between 2015 and 2050



SOURCE: UNITED NATIONS, 2015 WORLD POPULATION PROSPECTS: THE 2015 REVISION

Niger with a projected increase of 250%, from 20 million to 72 million demands special consideration. This is a relatively rare example of a projection that makes no sense. Niger has a very fragile environment, highly susceptible to climate change, and suffers periodic food crises. It is impossible to envisage that the country can support such a growth in population, even at the most basic standards, or that international food relief can come indefinitely to the rescue on such a massive scale. The inevitable resolution will be mass migration, mostly to neighbouring countries. Whether this can happen without major strife is one of the great uncertainties but the topic is so politically sensitive that it is ignored in international discourse. Niger is only an extreme example of a Malthusian crisis that will affect the whole of the Sahel, the strip of arid and semi-arid land stretching from the Atlantic to the Horn of Africa (Potts, Henderson and Campbell 2013). As shown in Figure 2, population projections for Mali and Chad are also very high.

Explanations for the slow fertility decline in sub-Saharan Africa

What distinguishes African reproductive systems most clearly from those in other parts of the world is the stated desire for many children, expressed by both women and men in countless surveys. The earliest surveys in Asia and Latin America, conducted in the late 1950s and 1960s typically showed that most couples wanted to have two to four children; many women in their 30s wanted to stop childbearing altogether. In sub-Saharan Africa, desired family sizes were (and remain) much larger and fewer women wanted to stop. For instance, World Fertility Surveys, conducted in the 1970s and early 1980s, show that desired sizes among young women in seven African countries ranged from 5.2 in Ghana to 8.3 in Senegal. By contrast, in only one (Syria) of 14 Asian and Pacific countries did the mean desired size exceed five children. In 13 Latin American and Caribbean countries, the highest desired size was 3.8 in Mexico (Lightbourne 1987).

What accounts for this huge difference in attitudes towards childbearing? Answers can be sought in evolutionary history. *Homo sapiens* evolved in Africa, facilitating the co-evolution of a uniquely wide range of parasitic diseases, leading to exceptionally high mortality. Africa's population is characterised by a mosaic of different ethnicities with rather little historical evidence of large empires that could impose eras of peaceful co-existence. Mortality was thus further raised by incessant raiding and warfare between different tribes. These two factors go a long way to explaining Africa's small population size until recently. They may also

account for reproductive attitudes. Survival of the group depended on a high birth rate and, in particular, on the ready availability of young men to protect against aggressive neighbours.

The speculations in the preceding paragraph are consistent with more commonly expressed explanations. John Caldwell has argued forcefully that features of social organisation, underpinned by traditional African religion, served to engender and sustain pronatalism (Caldwell and Caldwell 1987; Caldwell, Orubuloye, and Caldwell 1992). Drawing on anthropology and his own extensive field studies in Nigeria, Caldwell viewed the extended lineage, rather than the nuclear family, as the key feature of social organisation. The lineage includes both the living and the dead. The dead retain their individuality for as long as they are specifically remembered and may be reborn into the lineage. The imperative for both living and dead is survival of the lineage. Reproduction is enforced with spiritual power and reproductive failure is interpreted as ancestral disapproval.

The dominance of the lineage also has more prosaic economic implications. Mortality decline invariably precedes drops in fertility and, as a consequence, the number of children who survive to adulthood rises. Whereas in Asia, the burden of rearing an increasing number of surviving children fell directly on the nuclear parents, in Africa the burden is diffused among relatives. More affluent lineage members are under an obligation to help those less fortunate with, for example, school fees. Child fostering is common. A related factor concerns land tenure in much of Africa, which is controlled by communities and allocated to individuals according to need. These features are likely to delay a fertility response to improving survival.

Other commentators have sought to account for the slow decline in fertility more straightforwardly in terms of low socio-economic development. All the familiar indicators – life expectancy, GDP per head, percent urban and educational level – are less favourable in Africa than elsewhere. A recent examination suggests that the level of development at the start of the African fertility transition in the 1990s was lower than in other developing regions at the start of their transition in the 1970s (Bongaarts 2016). Nevertheless, at the same level of development, fertility in African countries is about one birth higher than elsewhere. In other words, there is a unique “Africa” effect on childbearing.

Yet a further explanation is the relative lack of firm policies and programmes to reduce rapid population growth by promotion of contraception. Opinion is divided about the effectiveness of family planning programmes to reduce fertility. Most economists are sceptical and view demand for smaller families stemming from modernisation as the overridingly important factor. But they ignore the fact that contraceptive practice represents a radical innovation that concerns core features of human life, sex and procreation. Like most such innovations, contraception is often greeted with deep suspicion and anxiety and sometimes with outright hostility. Information and educational efforts, together with family planning services, organised by governments or large non-governmental organisations, can allay suspicion and subdue opposition and thereby hasten mass adoption of contraception and fertility decline. Strong government actions were a major influence on fertility transition in Asia, though less so in Latin America where initiatives were spearheaded by non-government organisations such as Profamilia in Colombia and Bemfam in Brazil.

Until recently, the attitude of African political leaders to the idea of fertility reduction and curbing population growth has been lukewarm or hostile, no doubt in part because of the perception by leaders that most citizens wanted large families (May 2016). Few governments have launched major family planning initiatives. The main exceptions have been South Africa under the Apartheid regime, Rhodesia (now Zimbabwe) under the illegal Smith regime and Kenya in the 1980s under President Moi; it is no coincidence that these three countries have been at the forefront of reproductive change in Africa.

Prospects for accelerated fertility declines

The UN medium projections, thus far, have been used to portray the most likely future for Africa's fertility trend and population growth. But, as already mentioned, they are not set in stone. In this section, future fertility prospects are assessed in three very different ways: trends in the desire to stop childbearing; the reproduction of the best educated; and the lessons from two countries that have achieved recent rapid declines.

Desire to stop childbearing

In Asia, Latin America, and north Africa, the fall in childbearing was dominated by family size limitation. Couples, typically in their early 30s, having had a few children, decided that they wanted no more and adopted contraception to

achieve this desire. Some evidence suggests that the African fertility transition is taking, and will continue to take, a very different form. Rather than contemplating a permanent cessation of childbearing, it is suggested that couples will postpone births and reduce ultimate family size by very long inter-birth intervals (Moultrie, Sayi and Timaeus 2012). Such behaviour is consistent with a large and convincing body of evidence that wide birth spacing has long been valued in Africa and indeed has an important role in enhancing child growth and survival. Historically it was achieved by prolonged postnatal sexual abstinence.

Nevertheless, it seems unlikely that low fertility will be achieved in Africa solely by postponement and spacing. Women start families at an early age and, even with average inter-birth intervals of 48 months, five children can be achieved with ease. It is also telling that prospective studies in Nigeria, Ghana, Malawi and work in progress in Kenya show that women or couples who state at baseline that they want no more children do indeed achieve lower fertility in the subsequent two or three years than those who state a desire for more children at some time in the future. In rural North Malawi, for instance, 33% of women who stated that they wanted no more children gave birth or became pregnant within the next three years compared with 55% of those who wished to delay the next child by three or more years and 63% of those who wanted a child within three years (Machiyama et al. 2015). The proportion of those wishing to stop who nevertheless became pregnant may seem large but similar results have been obtained in Asia and north Africa and many possible explanations can be found: change of preference; contrary desires of the husband; and contraceptive failure, discontinuation or avoidance. The significance of the Malawi results is that the family size limitation appears to provide a more compelling motive for pregnancy-avoidance than postponement. Perhaps, after all, the pattern of African reproductive decline will not be so different from that in other regions.

To the extent that the spread of family size limitation is essential for the goal of low fertility, it becomes relevant to examine trends in the desire to stop having any more children. Table 2 shows these trends for women who already have three surviving children. The choice of three children is in part arbitrary but also justifiable on the grounds that low fertility is unlikely until a large fraction of couples are content to have a small family of three or fewer offspring. Countries with at least four Demographic and Health Surveys have been chosen for this analysis.

Table 2: Among women with three living children, percentage who want no more

REGION/COUNTRY	PERIOD				
	1990–4	1995–9	2000–4	2005–9	2010
West/Central Africa					
Benin	–	15	15	19	23
Burkina Faso	12	11	14	–	14
Cameroon	8	10	16	–	20
Ghana	31	36	36	36	35
Mali	–	11	10	11	12
Niger	6	5	–	4	4
Nigeria	9	11	8	13	13
Senegal	9	9	–	12	12
East/Southern Africa					
Kenya	47	52	50	58	60
Namibia	35	–	65	68	61
Rwanda	25	–	24	57	57
Tanzania	12	24	25	–	21
Uganda	–	25	29	24	30
Zambia	11	23	28	24	28
Zimbabwe	31	45	–	53	50

SOURCE: UNITED NATIONS.2015 WORLD POPULATION PROSPECTS: THE 2015 REVISION

The trends for west and central Africa are depressing in terms of prospects for decline. In most countries, only a small minority of women wish to stop childbearing after three children and trends over the past 20 years are modest. Cameroon is a partial exception, with an increase from 8% to 20% between the early 1990s and recent years. Ghana, the forerunner of fertility decline in this sub-region, has a much larger proportion wishing to cease childbearing though little change has occurred in the past two decades.

In east and southern Africa, the impression is very different. In four of the seven countries, half or more of women with three children express contentment with this number. The exceptions are Tanzania, Uganda and Zambia. In both Tanzania

and Zambia, a sharp rise from around 12 to 24% is apparent in the 1990s but there has been little further change since then.

Kenya is a particularly interesting case. In the World Fertility Survey of 1979-80, only 16% of all married women wanted no more children but within a decade this proportion had swelled to 49%. This decade saw the implementation of a vigorous family planning programme, with a strong informational and educational component, led by President Moi and Vice-President Kibaki, and a surge in contraceptive adoption. This sequence suggests that reproductive aspirations can be abruptly de-stabilised by the advent of reproductive choice. Something similar may have occurred in Rwanda. In this country the dramatic rise in the percent wishing to stop at three children in the first decade of this century coincided with a major re-invigoration of family planning under the auspices of President Kagame. However, puzzles remain. In Zambia, use of a modern contraceptive method rose sharply from about 20% in 2000 to 45% in 2013, about the same level of use as in Rwanda, but without the revolution in reproductive attitudes.

The broad conclusion from this examination of reproductive preferences is that the idea of family size limitation has taken root in much of east and southern Africa and the prospects of further declines look bright. The opposite applies to west and central Africa.

Fertility among well educated women

The reason for attempting to discern the future by examining current levels of childbearing among well educated women is that they are usually in the vanguard of change. Contraceptive adoption and a fall in fertility usually starts in privileged strata before diffusing more widely. Thus the reproduction of women with secondary or higher schooling in Africa may be a guide to behaviour in the total population in the next couple of decades.

A total of 13 west or central Africa countries have conducted Demographic and Health Surveys, or similar, in 2010 or more recently. The percent of women aged 15-49 years with some secondary or higher education ranges from 9% in Niger to 63% in Ghana, with a mean of 29%. Among this group, the lowest fertility is recorded in Cote d'Ivoire at 2.8 births. Fertility of over 4.0 is apparent in Niger (5.0), Mali (4.6), Nigeria (4.5) and Gambia (4.5). The mean for all 13 countries is 3.8.

In east and southern Africa the percent of well educated women ranges from 11% in Ethiopia to 73% in Zimbabwe, with a mean among 11 countries of 31%. In this group the highest fertility is found in Burundi (4.6) and Uganda (4.5) and the lowest in Ethiopia (1.9). Mean fertility is 3.5 births.

Several observations may be made on the basis of this simple exploration. First, achievement of secondary schooling does not automatically translate into low fertility as evidenced in seven of these 24 countries. Second, the large east-west divide seen in Table 2 largely disappears when attention is focussed on behaviour of the well educated. The level of women's education is similar and, while fertility, on average, is lower in the east than the west, the difference is small. Third, the indications for future fertility decline tend to be positive. Close to one-third of women of reproductive age have received secondary or higher schooling and their fertility is currently not much above three births, compared with about five for all women. Secondary school enrolments are destined to increase in the future and, more importantly, the less well educated are likely to follow the reproductive path of their better educated counterparts.

The lessons of success

Two countries, Ethiopia and Rwanda, have experienced remarkably sharp recent fertility declines. What can be learnt from these successes?

Ethiopia's population is estimated to be about 100 million, the second most populous country in sub-Saharan Africa. Despite rapid growth in GDP in the past 10 years, it remains one of the world's poorest countries and is the world's largest recipient of international food aid. School enrolments have improved but adult educational levels are low. Half of women of reproductive age have received no schooling and, as shown above, the percentage with secondary schooling is exceptionally low.

Despite these disadvantages, the country has achieved an impressive degree of demographic modernisation. For instance, life expectancy improved by close to 16 years between 1990 and 2013, whereas the gain for Africa as a whole was only about six years. Similarly, fertility fell from seven births per woman in the early 1990s to 4.6 births in 2010–15, a drop of 35% compared with a drop over the same period of 18% for the entire region.

Strong policies and programmes can take much of the credit for these stunning achievements (Halperin 2014). The 1993 population policy set explicitly demographic goals of reducing fertility to four births and raising contraceptive use to 44% by 2015. In 2004, the abortion law was liberalised. A cadre of over 30,000 mainly female community-based health and family planning workers was trained for one year and posted back to their own localities. One lesson from Ethiopia, like that of Bangladesh in the 1980s, is that major progress towards low mortality and fertility can be made in the absence of broad socio-economic development given political will and programmatic efficiency.

Rwanda, a much smaller and more densely populated country than Ethiopia, is placed at position 163 out of 188 on the human development index, the same as Uganda but slightly higher than Ethiopia at position 174. The country adopted a pronatalist stance in the aftermath of the genocide but in 2003, the policy changed to the goal of reducing population growth and, as in Ethiopia, a strong emphasis was given to outreach family planning services. Between 2005 and 2014/5, the percent of married women using a modern contraceptive method rose from 10 to 48% and fertility fell from six to a little over four births per woman, an astonishingly rapid transformation.

The key lesson from Ethiopia and Rwanda appears to be that determined government initiatives can bring about rapid reproductive change as part of a wider agenda of health improvements, educational expansion and economic vibrancy. Both political regimes run relatively efficient administrations that are capable of mass mobilisation and implementation of effective nationwide programmes. Both are autocratic, with little tolerance for opposition, and it remains uncertain whether political evolution towards greater inclusiveness and freedom of expression will occur. The civil insurrection in Ethiopia in October 2016 is certainly a warning sign that a more inclusive approach is needed. Nevertheless, the experience of these two countries is relevant to the more secure and competent regimes in Africa.

Discussion

As stated at the outset of this paper the future size of the world's population depends largely on what happens to fertility in sub-Saharan Africa. The skilled and experienced team of demographers at the UN Population Division think

that the pace of decline will continue to be as gentle as in the past. They may well be correct, particularly for west Africa. Some of the evidence reviewed here, however, suggests that sharper declines could be achieved. In addition, rapid urbanisation is expected in Africa. Though this will result in a proliferation of slum populations, fertility is markedly lower in urban slums than in rural areas and thus rural-urban migration will favour drops in childbearing. Further expansion of secondary schooling will also accelerate the pace of change, as will increased exposure to mass media.

Developments in the application of birth control technologies are a further relevant factor. Hitherto, injectable contraception has been dominant. Though highly effective, this type of method requires re-supply every two or three months. Discontinuation because of side effects and health concerns is common and switching to an alternative method is low. The link between contraception and pregnancy-avoidance is thus weakened. In response, there is a new emphasis on the promotion of long-acting reversible methods, intra-uterine devices and implants, which have much lower rates of discontinuation than injectables, perhaps because stopping requires a conscious decision to remove the device. Use of implants, but not IUDs, is now rising rapidly in many countries. The proliferation of medical abortion products, often available illegally across the counter in medical stores, may already be having an effect on childbearing, particularly among sexually active single young women for whom the stigma of abortion is less than the shame and threat to prospects of motherhood (Johnson-Hanks 2002).

The most compelling grounds for optimism concerns politics, both international and domestic. Just as the fertility transition was starting in Africa in the early 1990s, international concerns about high fertility and rapid population growth waned. At the 1994 Cairo conference on population and development, the agenda of population control was swept aside and replaced by a broader vision of women's reproductive health, rights and empowerment. Subsequently, the desirability of curbing population growth, and even the word "contraception" disappeared from international discourse. In Africa, family planning funding was diverted to a new emergency, HIV. As high fertility and rapid population growth jeopardises employment prospects, food security, improvement of human capital and the environment, Africa's long term prospects were severely damaged by the new international consensus.

The pendulum of international opinion has now swung back. The worst of the HIV pandemic is over, new concerns have arisen about the world's ability to feed a growing population without further severe environmental damage, and the huge surge in Africa's population has raised alarms about mass migration from poverty and hunger. In 2012, the London Family Planning Summit pledged to reach an extra 120 million women with affordable contraception by 2020. Funding has increased and the reluctance to talk openly about the subject has abated.

This change at the international level will achieve little without changes at national governmental level. Here also, positive developments are apparent. The concept of a "demographic dividend" has traction among African politicians and economists. This dividend, or boost to living standards, arises when the falling fertility brings in its wake a rise in the ratio of adult workers to dependent infants and children. Econometric evidence suggest that this change in age structure made a large contribution to rapid improvements in income per head in east Asia. This prospect is appealing to African elites. Poverty reduction is a universal goal and the narrative of the demographic dividend neatly circumvents explicit mention of curbing population growth, though, of course, it will have exactly this effect. President Museveni of Uganda, historically an opponent of family planning promotion, has been convinced and other leaders are showing similar signs, spurred on by endorsements from the World Bank and IMF (May 2016). We are entering an era when political will and (hopefully) international funding may act in concert to accelerate reproductive change. The re-imposition by President Trump in January 2017 of the global GAG rule that prevents US funding of any non-government organisation that in any way promotes or facilitates access to abortion is a backward step but in the past this restriction has not made a decisive difference to overall funding for family planning, in part because other donors made good the deficit.

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