

AFRICA

2050

African Demography



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Introduction

Today, most developing countries have achieved quite low levels of mortality and fertility and much lower rates of population growth than in the 1960s. The situation is quite different in Africa and especially in sub-Saharan Africa (SSA). In several SSA countries, mortality declines have stalled, or even reversed, in the 1980s and 1990s because of the impact of HIV/AIDS and civil unrest. In addition, fertility declines generally associated with mortality declines, in what is called the demographic transition, have occurred in most African countries much later than elsewhere in the world. As a result, most African countries still have very high levels of fertility, high rates of population growth and very young populations.

Because of these trends, most African countries must today confront two major population-related challenges: (a) they have to address the doubling or even the tripling by 2050 of their working age population; and (b) they have to better prepare for the future of their upcoming young generations. At the same time, almost all African countries will need also to confront the rapid increase of their elderly population (above age 65), whose numbers will be multiplied by a factor of 3 to 5 by 2050.

First, most countries in the region will need to tackle *the doubling or the tripling of their working age population*. This exceptional increase of the labor force could be called a demographic “heritage of the past.” It is the direct result of high fertility levels since the 1960s, a consequence of the lack of interest and a neglect of the demographic trends on the part of public authorities, civil society and international donors. This unprecedented increase is an inescapable phenomenon and the weight of past demographic forces will have to be dealt with. However, providing jobs to all new job seekers will prove very difficult. A recent report of the African Development Bank states that the formal (i.e., modern) sector in Africa will not be able to absorb all upcoming young workers (African Development Bank 2012). According to this report, only one quarter of young African men and 10% of young African women are presently able to get secure jobs in the formal sector when they reach the age of 30. Therefore, the vast majority of young Africans have, and will continue to have, precarious jobs in the informal sector, especially in urban areas or the agricultural sector. Many of them will remain under-employed or simply unemployed.

Today, in all African countries but three, the age group 15-29 represents more than 40% of the adult population (above age 15), a phenomenon known as the “youth bulge.” By 2030, 40 of

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the 53 countries studied³ are likely to continue to have more than 40% of their adult population in the 15-29 age group, and by 2050, 27 countries (half of them) will still be in that position if fertility decline remains as slow as it has been in the past. These young people will be more and more concentrated in urban areas and mega-cities (there might be 15 cities of more than 10 million in 2050, compared to only two in 2010). The informal sector will remain the major source of job creation for the youth, as it has been the case in most African countries in the past 30 years. All youth development strategies will need to address these hard facts. If they do not and if the young people do not accept their living conditions, this might translate into major social disruptions similar to those that have been observed recently in several Northern African countries during the “Arab Spring.”

The second challenge facing African countries is related to the creation of the conditions needed to bring a better future for the young African generations of tomorrow. Future development and prosperity require a rapid decline in the presently high dependency ratios, as has been the case in today’s emerging countries. This can only be achieved through a steady decline of the proportion of youth aged less than 15 or 20 years. Such a decline will allow important resources devoted to the health and education of large numbers of children below age 15 to be reallocated to the secondary and tertiary education of young adults and to the creation of jobs. In fact, the corresponding changes in the age structure fulfill one of the conditions needed to benefit from a demographic dividend. However, such a scenario implies for the majority of African countries a much more rapid fertility decline than the one that has been observed so far. This fertility decline can only be achieved if contraceptive coverage increases markedly from present low levels to rates of about 60% or more of women in union by 2050.

This will prove difficult to achieve. David Bloom and colleagues have studied the prospects for 32 countries in sub-Saharan Africa to capture the demographic dividend (Bloom et al. 2007). After examining the projected growth of the age group 15 to 64 as well as a set of indicators pertaining to the institutional framework, they concluded that only five countries were in a position in 2007 to truly enter this window of opportunity during the next 20 years (i.e., Ghana, Côte d’Ivoire, Malawi, Mozambique and Namibia). Cameroon, Senegal, Togo and Tanzania were well placed to do so as far as their labor force’s growth was concerned, although they needed to improve significantly their institutional environment. Finally, the other countries reviewed in the study were not deemed to be in a position to capture the demographic dividend any time soon, although several countries had made significant progress since 2000 to improve their institutional framework.

To sum up, one might say that the dual challenge of most African countries will be to deal with the demographic situation inherited from the past whilst preparing at the same time for a better future for the upcoming generations. This can be managed through the design and implementation of sound population, health, education and economic policies. However, these policies must be put in place as soon as possible for these countries to be able to capture the

³ There are 54 sovereign countries in Africa with South Sudan, which became independent in July 2011. South Sudan is not analyzed in this paper because of lack of reliable estimates.

benefits of a demographic dividend, trigger inclusive growth, reduce poverty levels and eventually achieve economic convergence.

This paper will first stress the importance of the demographic factor in the development process and outline a demographic vision for 2050. The paper will then examine the past and current demographic situation of the continent. Next, the paper will present the UN population (2010) and urbanization (2011) projections for Africa and examine the results of their different assumptions in terms of social development and dependency ratios. Finally, the paper will conclude with a set of necessary steps and recommendations to achieve the demographic vision set initially.

The Road to Complete the Demographic Transition: A Vision for 2050

The main reason for the rapid population growth of most African countries since the 1960s is that they have experienced later and slower demographic transitions and fertility declines than other countries of the world (Bongaarts & Casterline 2012; Guengant 2007; Guengant 2012; and Guengant & May 2011a). The demographic transition is defined here as the shift from a “traditional” regime of high mortality and high fertility to a new “modern” regime of low mortality and low fertility. The demographic transition is usually accompanied by other major changes, namely the epidemiological transition, i.e., a shift in health patterns from communicable to non-communicable diseases (May 2012). In addition, populations going through their demographic and epidemiological transitions do experience other broad-based socioeconomic changes. Generally, their economy shifts gradually from agricultural to industrial production and eventually to a service-based economy. They also experience important migratory movements from rural to urban areas, which result in the majority of people living in urban settings. International migratory movements do often occur as well, and the remittances sent by emigrants may have an important economic impact.

This shift from a “traditional” to a new “modern” demographic” regime can be slow or more rapid, influenced by socioeconomic factors, and accelerated (or not) by the design and implementation of adequate population and health policies (or the lack thereof). Northern African countries have seen their fertility decline sooner, in the 1970s, i.e., a decade before the countries in Southern Africa. But most other countries in Eastern, Middle (Central), and Western Africa experienced the beginning of their fertility declines only in the 1990s or 2000s, and some of them have had so far no fertility reduction whatsoever or only incipient declines.

A 1986 report of the US Academy of Sciences claimed that the population factor was neutral in the development process (US National Academy of Sciences 1986). But empirical evidence and new research findings point today to a different picture. First, the rapid population growth in Africa and particularly in SSA⁴ has translated into a slow increase *overall* of the gross domestic product (GDP) per capita, despite impressive gains in some countries during recent years. Although the aggregate GDP of SSA countries has grown significantly in *real term* over the past

⁴ Traditionally, the United Nations has defined sub-Saharan Africa as encompassing all countries in Eastern, Middle (Central), Southern, and Western Africa, plus Sudan. South Sudan, which became independent in July 2011, is now listed in Eastern Africa, but Sudan remains in Northern Africa.

50 years and has been increased six-fold between 1960 and 2011, GDP growth *per capita* has been modest during the same period—an aggregate increase of 54%. In several SSA countries, the real 2011 GDP per capita is in fact lower than in the 1960s (World Bank 2012). This evolution is in sharp contrast to what has happened in Asia, Latin America and the Caribbean, which taken together have reduced their annual population growth from about 2.5% in the 1960s and 1970s to about 1% per year today and have multiplied their real 2011 GDP per capita by 2.4 for Latin America and the Caribbean, by 4 for South Asia, and by 5.5 for East Asia. The population growth rate in SSA as a whole has stayed at around 2.5% per year since 1960, and it is around or even above 3% per year in several countries today.

Second, recent evidence from East Asian emerging economies has highlighted the crucial importance of the transformation of the age structure in explaining their rapid economic growth since the 1970s (Birdsall et al. 2001). In East Asia, rapid declines in fertility have brought about two key results: (a) a relative increase in the labor force; and (b) substantial improvements in the dependency ratios, i.e., the number of dependents below age 15 or age 20, as compared to the working age population (age group 15-64 or 20-64). This phenomenon has been called the “window of opportunity” to capture the demographic dividend (Ndulu et al. 2007; Sippel et al. 2011). Human capital formation investments (e.g., education and health) and job creation appear to have been greatly facilitated by a rapid decline of fertility. This happened because the effect of fertility decline (i.e., the stabilization of the number of annual births) allowed a shift of public and private resources to young adults and economic sectors (previously, these resources were allocated to the numerous young children). However, many other conditions, including sound macro-economic and social policies are also needed to capture the demographic dividend (Eastwood & Lipton 2011). These conditions can be summarized as follows: (a) building good quality human capital through higher quality education and health services; (b) savings and investments to provide enough jobs for the youth; (c) good governance; and (d) transparent and accountable institutional frameworks to foster a conducive business climate (Mason 2003).

It can no longer be said that the population factor is neutral in the development process. On this subject, recent research has pointed to an “apparent link between decreasing fertility and increasing development.” However, it should be stressed that “the parallel between the two factors ‘fertility’ and ‘development’ does not automatically signify a causal relationship between the two, since a correlation does not necessarily imply interdependence” (Sippel et al. 2011: 16). In fact, the question of what comes first – either fertility decline or economic growth – cannot be answered in a simplistic manner.

All these recent research findings are bringing an entirely new perspective to the old debate that has taken place among economists about the importance of the population factor for development. The consensus that seems to emerge now is that there is a two-way relationship between fertility decline and economic growth. This was established empirically in the case of Ethiopia (World Bank 2007). Therefore, a central policy question for African countries, which have not yet completed their demographic transition, is to examine the possibility for them to accelerate and, in several cases, even initiate the decline of their fertility with the view of capturing the demographic dividend.

Conceptually, this paper relies on the empirical evidence of this two-way relationship between socioeconomic conditions and demographic outcomes. First, the paper posits that socioeconomic advances help foster demographic transformations and that improvements in demographic indicators also help trigger socioeconomic advances (World Bank 2007). However, improvements in socioeconomic conditions *per se* will not bring demographic changes, nor will demographic transformations *as such* bring socioeconomic changes. Again, if the demographic transition appears to be one of the necessary conditions to foster socioeconomic development, it is not a sufficient one. Moreover, public authorities will need to intervene on mortality and particularly on fertility for the demographic changes to be rapid enough, and public authorities will need to do so through adequate population and health policies and programs. Secondly, the paper asserts that demography is not destiny, i.e., that the demographic trends are not an independent variable. On the contrary, policies do influence demographic outcomes and may do so even in a relatively short term, as short as 5-10 years, because of the relatively rapid impact of such policies on the annual number of births (May 2012; Guengant 2012).

In this perspective, this paper is based on the proposition that by 2050 all African countries should have a “modern” demographic regime of low mortality and low fertility, like most emerging countries today (Guengant 2009). This would enable them to be in a position to capture a demographic dividend, realize inclusive growth, reduce poverty levels and achieve economic convergence. The goal of reaching a modern demographic regime by 2050 implies a convergence of the high levels of mortality and fertility observed today in most African countries to those observed presently in the emerging countries, but also in most other developing countries. For mortality, this assumes the pursuit of the mortality decline, not only of infant and child (under-five) mortality but also of adult mortality (especially through sustained efforts to reduce the impact of HIV/AIDS and major progress in the reduction of cardio-vascular mortality). For fertility, this implies reaching fertility levels between two or three children per woman.

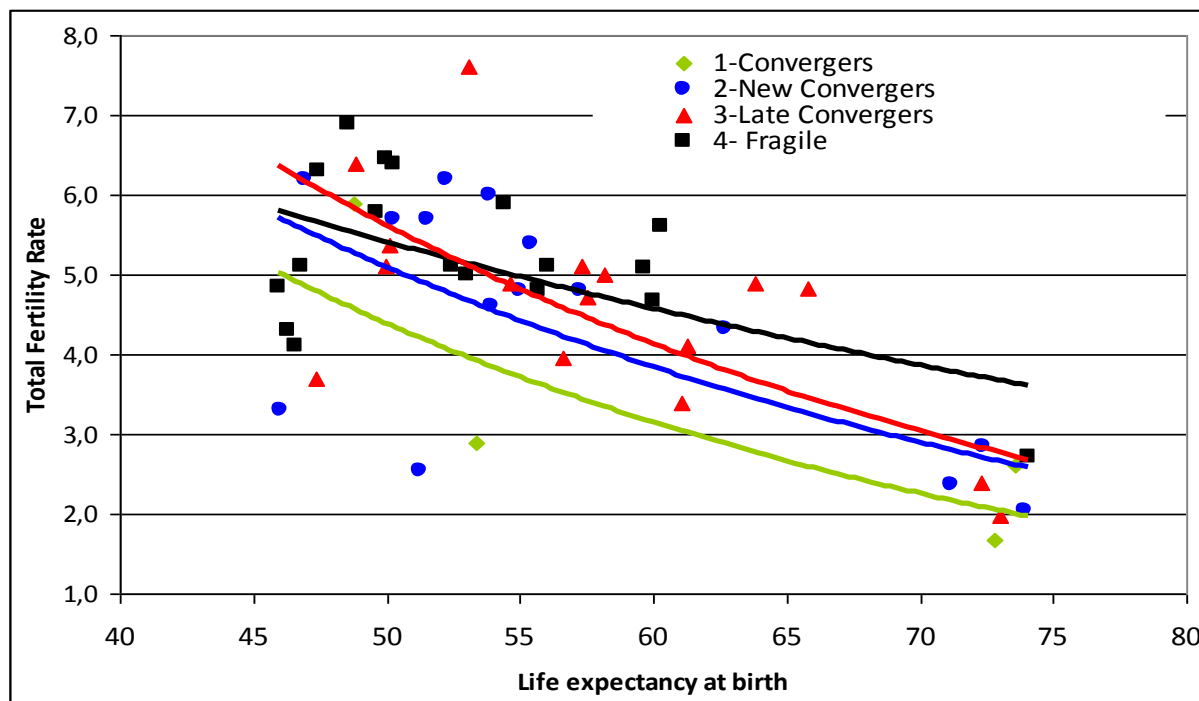
The Demographic Context

The main demographic indicators of the 53 African countries studied are presented in Annex 1, namely the total population in mid-2010, the most recent fertility levels, life expectancies at birth in 2005-2010, the percentage of population residing in urban areas in 2010, and the number of urban agglomerations with 750,000 inhabitants or more in 2010.

The need to accelerate simultaneously mortality and fertility decline is justified by the relationship between these two variables. This relationship is illustrated to some extent by the simple correlation between the total fertility rates (TFR), i.e., the average number of births per woman, and the life expectancies at birth, i.e., the average number of years lived by every person, for the four groups of countries according to the “Convergence Model” classification. As it can be observed, these two key demographic indicators gradually improve as countries go through the four stages of this convergence process, i.e., from “Fragile” to “Late-convergers” to

“New Convergers” and finally to “Convergers” status. It should be noted that only four countries belong to the “Convergers” group (see Figure 1).

Figure 1: Total fertility rates and life expectancy at birth, 2005-2010 or most recent estimates, African countries by levels of economic achievement



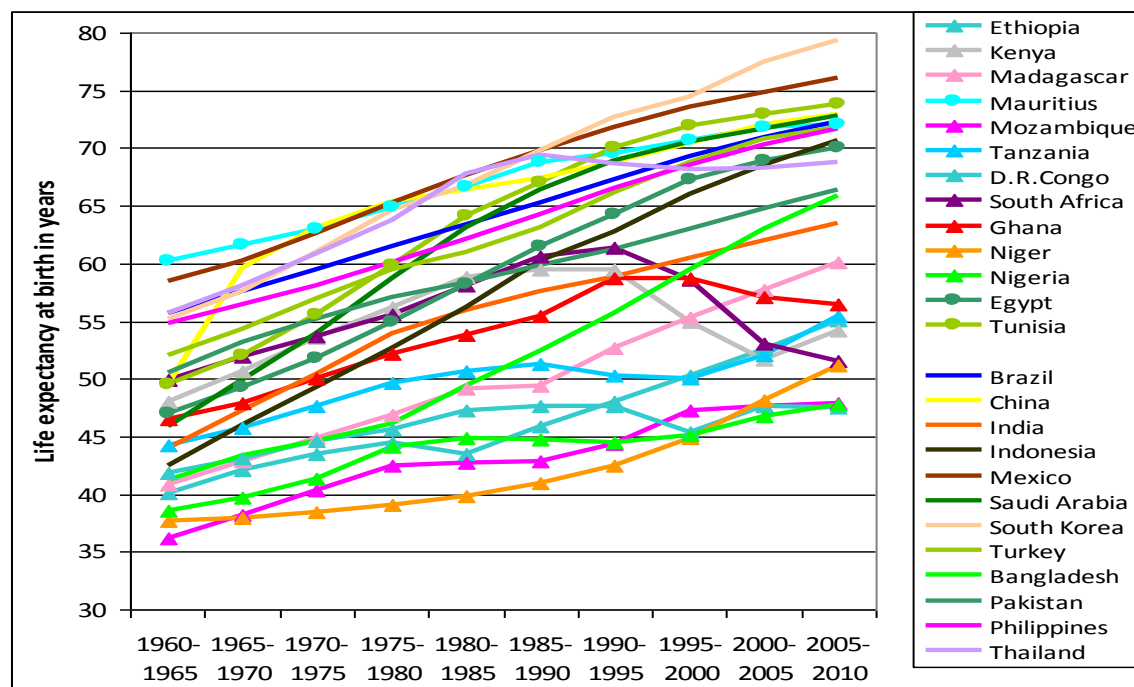
Source: United Nations 2011 and calculations of the authors.

Note: R^2 values range from 0.316 for “Fragile”, to 0.500 for “Late Convergers”, to 0.446 for “New Convergers”, and to 0.671 for “Convergers”.

Mortality Levels and Trends since 1960

Life expectancy at birth, or the average number of years that a newborn would live under the mortality conditions prevailing at a given time, has increased in most African countries since the 1960s. But the progress has been slow and thwarted in several countries by the deterioration of health services, the impact of HIV/AIDS, and occasionally civil strife and social unrest. This is illustrated by comparing the life expectancies at birth estimated by the United Nations in 2010 in 13 selected African countries taken from each sub-region and 12 other non-African countries since the early 1960s (see Figure 2). These other countries include emerging market countries that are part of the G-20 Group, i.e., Brazil, China, India, Indonesia, Mexico, South Korea, Saudi Arabia and Turkey, and four other developing countries, i.e., Bangladesh, Pakistan, Philippines and Thailand, which have different demographic indicators and levels of economic development. Since the low levels of life expectancy in Africa are heavily influenced by high child (under-five) mortality, the same comparison has been made for adult mortality by using the probability of dying between 15 and 60 years (45q15), in order to provide a proxy of the “time remaining” for young adults after they escape infant and child mortality (see Figure 3).

Figure 2: Life expectancy at birth from 1960-1965 to 2005-2010 for selected African countries and non-African countries



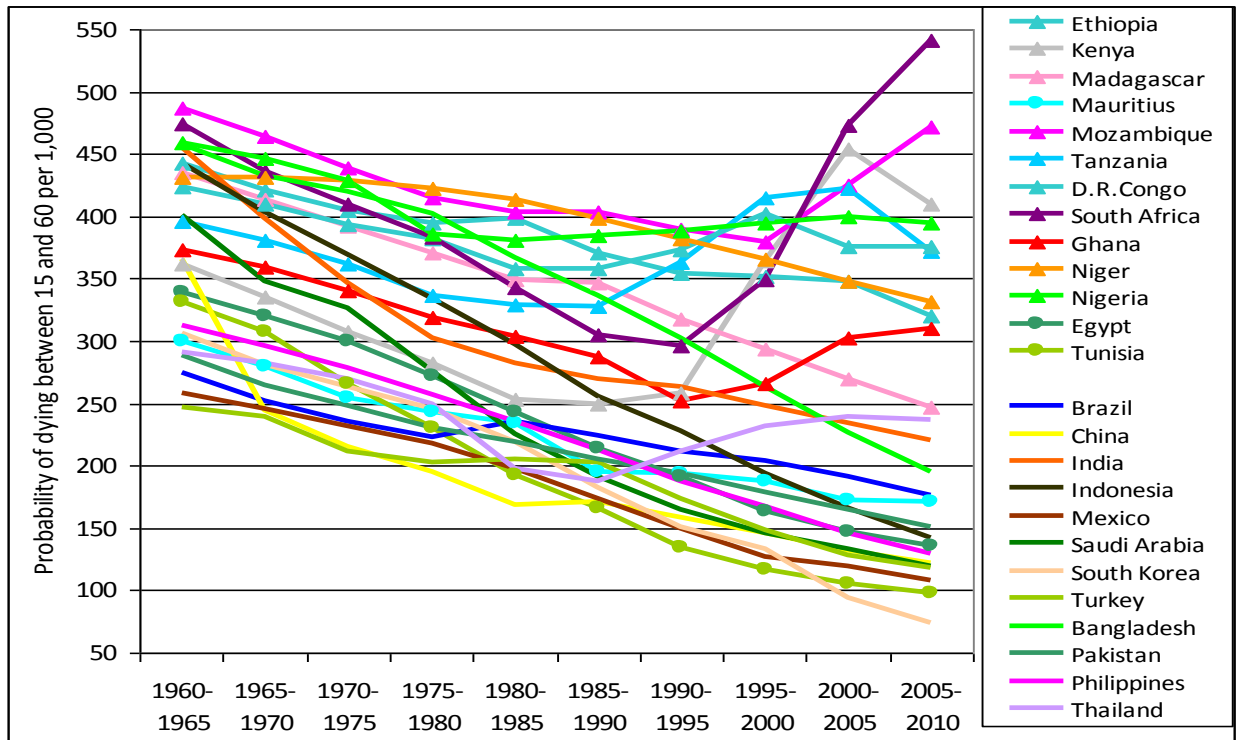
Source: United Nations 2011

In the early 1960s, mortality levels were high in most African countries, and therefore life expectancies were low: below 50 years (and in many cases below 40 years), compared to life expectancies in the selected non-African countries, which were generally above 50 years. During this period, only seven countries of the 53 African countries studied here had life expectancies above 50 years. They were mainly islands or Southern African countries, i.e., South Africa, Botswana, Sao Tome and Principe, Zimbabwe, Cape Verde, Mauritius and Seychelles, which had life expectancies above 60 years. Among the 12 selected non-African countries, only five countries had life expectancies between 40 and less than 50 years.

Between 1960-1965 and 2005-2010, increases in life expectancies have been important in most Northern African and African island countries, as well as in most other non-African countries. Life expectancies at birth in 2005-2010 were estimated at above 70 years in eight countries, i.e., Egypt, Morocco, Cape Verde, Mauritius, Algeria, Seychelles, Tunisia and Libya. But for most of the remaining 45 African countries, from the 1990s onwards, life expectancies increases have been modest or stagnated, and in some cases they have even decreased. This has been the case in particular in the countries most affected by the HIV/AIDS epidemic (especially in Southern and Eastern Africa) or which experienced civil wars and social unrest.

In most African countries, adult mortality estimates are less reliable than child mortality estimates because of the scarcity of data. However, the examination of the 2010 United Nations estimates points to interesting differences between African countries and the 12 selected non-African countries (see Figure 3).

Figure 3: Probability of dying between 15 and 60 (45q15) per 1,000 persons for selected African and non-African countries



Source: United Nations 2011

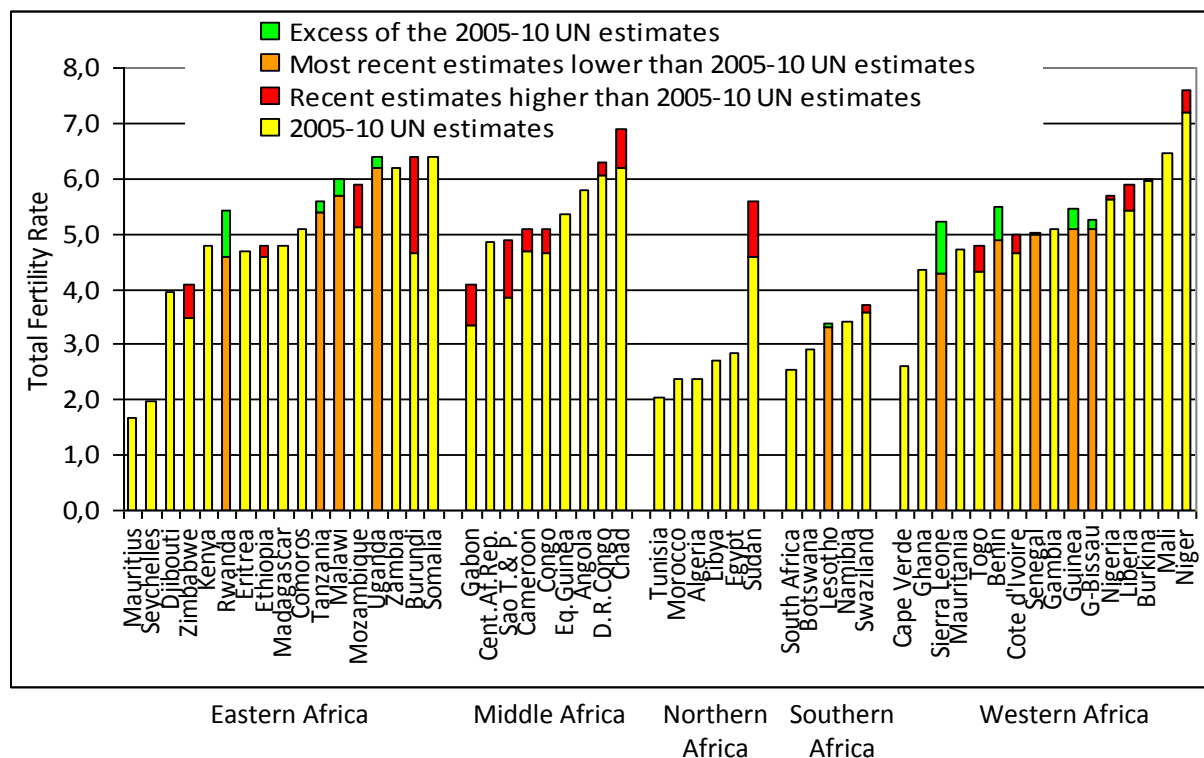
In eight of the 12 selected non-African countries, 15-year old adults had in the early 1960s a probability of dying between 15 and 60 ranging from about 250 to 350 per 1,000, which corresponds to a one in three or four chance of dying before their 60th birthday. For the same period, most African adults aged 15 had a probability of dying between 15 and 60 ranging from 350 to more than 500 per 1,000, which corresponds to a one in two or three chance of dying before their 60th birthday. Such high levels did not entice adults to plan for their future. In 2005-2010, for most of the selected non-African countries, the probability of dying between 15 and 60 varied roughly between 100 and 200 per 1,000, which corresponds to an 80 to 90% chance of surviving up to the 60th anniversary. For the same period, such levels can be found in Africa in only 10 countries out of the 53 studied (mainly in islands and Northern African countries). In fact, in half of the African countries in 2005-2010, the probability of dying between 15 and 60 was still estimated at more than 350 per 1,000, and in some cases (in Southern and Eastern African countries, those most severely affected by HIV/AIDS), at above 500 per thousand. Therefore, for the young adults in these countries, the chances of surviving up to their 60th birthday were still rather uncertain.

Fertility Levels and Trends since 1960

As for mortality, fertility declines have been slow and uneven in most African countries, which are still far from converging to the levels observed today in the emerging countries and in most other developing countries. As new data on total fertility rates became available since the

2010, when the United Nations made their latest projections, we have compared these estimates with the latest data published (without adjustments) (see Figure 4 and Annex 1).

Figure 4: Total fertility rates, 2005-2010 estimated by the United Nations and most recent estimates from 2009-2012 surveys results, by increasing order for each region



Sources: United Nations 2011, and DHS and MICS 4 surveys results (final or preliminary results)

New data, which were not used in the 2010 United Nations World Population Prospects, are available for 27 countries (primarily in Eastern, Middle and Western Africa). For 17 countries (representing 48% of the total population of the continent), the most recent survey results for fertility are higher than the 2005-2010 United Nations estimates, but for 10 countries (representing 14% of the total population), they are lower.

Using these most recent data, we have established a new typology of fertility transition in Africa.⁵ Two broad groups can be identified, as follows:

1. The first group comprises countries where total fertility rates are now at less than four children per woman. These can be considered as countries where the “fertility transition is completed or close to completion.” A total of 13 countries are concerned, accounting for 22% of the total population of the continent. They are all countries from Southern and Northern Africa as well as island countries. Their economies are generally more advanced than elsewhere, and the majority of these countries are “Convergers” or “New Convergers.” The three “Convergers” (out of four) are Cape Verde, Botswana and

⁵ Previous typologies were based on 2009 data: see Guengant 2007 and 2009.

Mauritius, and the five “New Convergents” (out of 15) are Egypt, Lesotho, Morocco, South Africa and Tunisia. Finally, four countries (out of 15) are considered as “Late Convergents”, namely Algeria, Namibia, Seychelles and Swaziland and one, Libya, is considered “Fragile.”

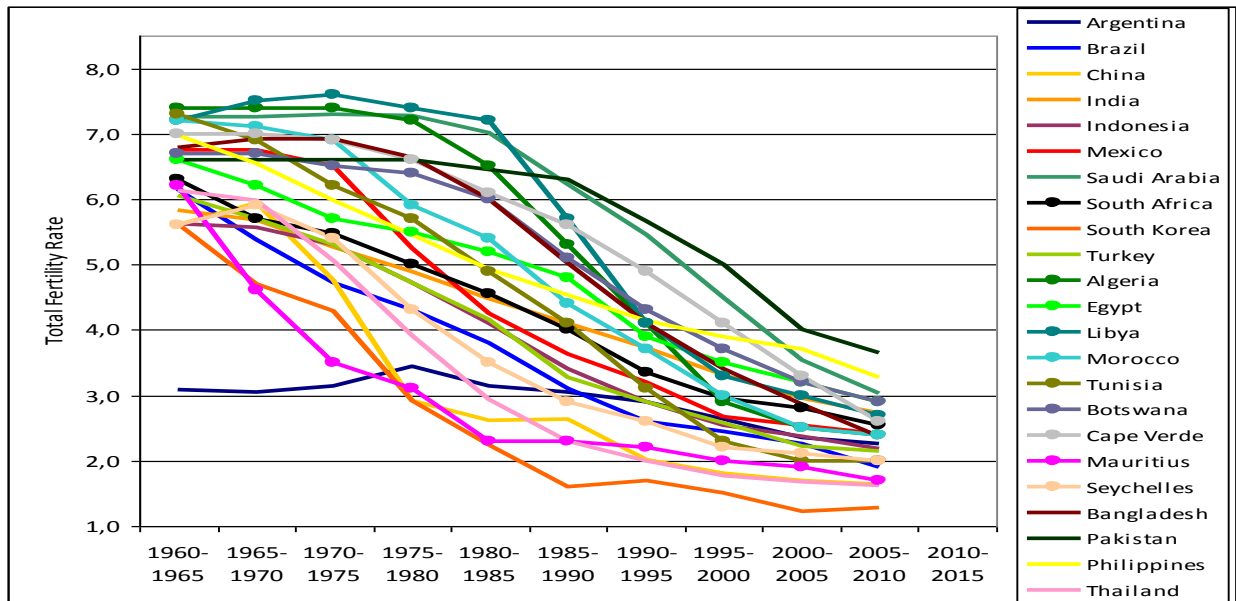
2. The second group encompasses countries where total fertility rates are now comprised between four and nearly eight children per woman (case of Niger). These can be considered as countries where the “fertility transition is still far from completion.” A total of 40 countries (in fact 41 since Sudan and South Sudan are not considered separately here) are concerned, accounting for 78% of the total population. Within this group, one can identify three subgroups, as follows:
 - i. “Transition in progress”: This encompasses 15 countries with a TFR between 4 and less than 5 children per woman, accounting for 22% of the total population. These are generally coastal countries, with high urbanization, and in some case a political commitment, albeit uneven and irregular, to lower fertility (Ghana, Kenya, and recently Ethiopia and Rwanda). Their economic situation is variable. Four countries are considered as “New Convergents,” i.e., Ghana, Rwanda, Ethiopia and Kenya; six as “Late Convergents,” i.e., Djibouti, Gabon, Mauritania, Madagascar, Sao Tome and Principe and Benin; and five are considered as “Fragile,” i.e., Zimbabwe, Sierra Leone, Eritrea, Togo and Central African Republic.
 - ii. “Slow and irregular transition”: This category includes 16 countries with a TFR between 5 and less than 6 children per woman, accounting for 37% of the total population. Again, these are mainly coastal countries, with mixed urbanization rates and an absence of, or at least a low, political commitment to lower fertility. Half of these countries are considered “Fragile.” Only one country is a “Converger,” i.e., Mozambique; three countries are considered as “New Convergents,” i.e., Tanzania, Malawi and Nigeria; four as “Late Convergents,” i.e., Senegal, Gambia, Cameroon and Equatorial Guinea; and the eight “Fragile” countries are Côte d’Ivoire, Comoros, Congo, Guinea, Guinea-Bissau, Sudan, Angola and Liberia. South Sudan might be listed in this group, or in the next one, depending on available data.
 - iii. “Very slow and/or incipient transition”: This group encompasses nine countries with TFRs above 6 children per women, accounting for 19% of the total population. Most of these countries are landlocked, with low levels of urbanization and a lack of strong political commitment to lower fertility. A majority of these countries are considered as “Fragile.” Three countries are considered as “New Convergents,” i.e., Burkina, Uganda and Zambia; one a “Late Converger,” i.e., Niger; and the five “Fragile” countries are the Democratic Republic of the Congo (DRC), Burundi, Somalia, Mali and Chad.

Overall, 31 countries, accounting for nearly 60% of the population of the continent and 70% of the population of sub-Saharan Africa belong to the “slow and irregular” or “very slow and/or incipient” transition subgroups and can be considered as being far from completing their fertility transition.

This pattern of persisting high levels of fertility in the majority of African countries differs markedly from what has been observed in other developing countries since 1960. To illustrate this difference, we have compared the evolution of total fertility rates of the 10 emerging countries that are part of the G20 Group (including South Africa), plus 9 African countries selected among the “completion or close to completion group,” and four other developing countries, i.e., Bangladesh, Pakistan, Philippines and Thailand (see Figure 5). Among the “far from completion group,” we have selected 23 countries to illustrate the slow evolution of the total fertility rates in this group of countries (see Figure 6).

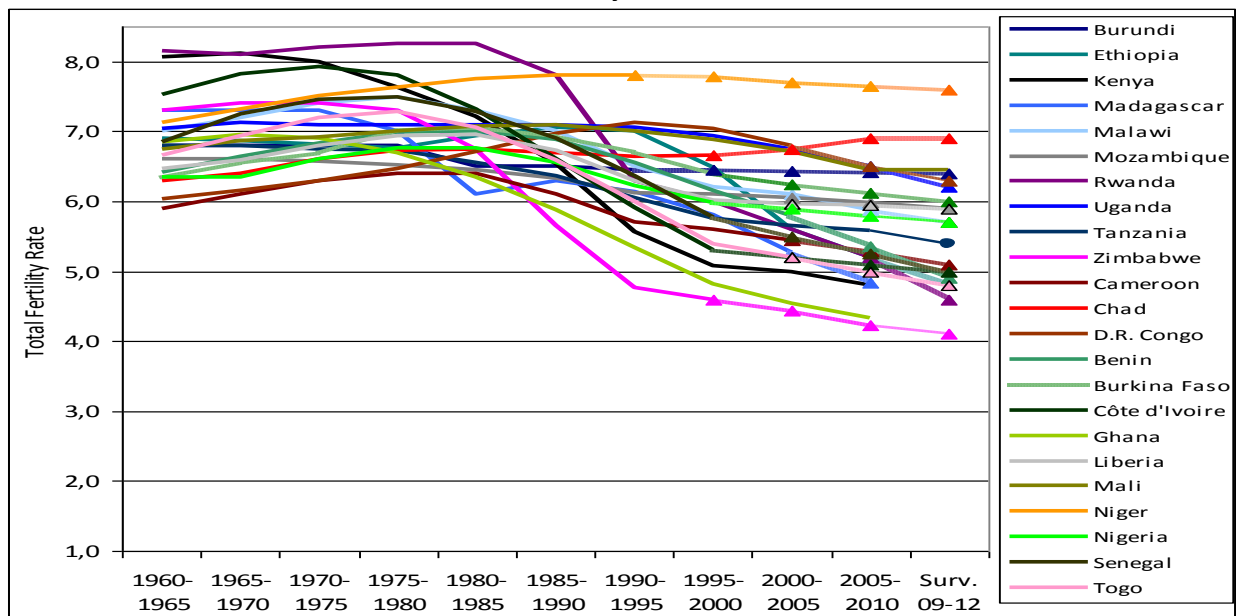
All the selected emerging and developing countries and the 10 African countries (including South Africa) of the “completion or close to completion” group had average number of children per women of about 6 to 7 children in the early 1960s and around 1.5 and 3 children in 2005-2010 (see Figure 5). In 2005-2010, only Pakistan and the Philippines had higher total fertility rates but still less than four children per woman. In most cases, declines started or accelerated in the 1960s, like in South Korea, Mauritius, South Africa, Egypt, Tunisia and Philippines. In other cases, they started later, i.e., in the 1980s, as in Libya, Algeria and Bangladesh. The decline has been very rapid in some countries, i.e., in Libya, Saudi Arabia, Algeria, Mexico, China and Thailand. In several cases, fertility declines were the result of a population and health policy aimed at reducing family size. But in other cases, they were the result of women wanting to control their fertility, which was, in some cases, associated with increases in standards of living. The diversity of these patterns and of the fertility levels in 2005-2010 illustrates that the fertility declines and demographic transition do not come automatically but, as said before, are usually associated with and accompanied by profound socioeconomic changes.

Figure 5: Total fertility rates, 1960-65 to 2005-2010, selected non-African countries and African countries well-advanced in their fertility transition



Sources: Sources: United Nations 2011, and DHS and MICS 4 surveys results (final or preliminary results)

Figure 6: Total fertility rates, 1960-65 onwards estimated by the United Nations and recent trends estimated from 2009-2012 surveys results, selected sub-Saharan countries



Sources: United Nations 2011, and DHS and MICS 4 surveys results (final or preliminary results)

The 23 African countries of the “far from completion” fertility transition group had an average number of children per women of about 6 to 8 children in the early 1960s and between 4 to 8 children in 2005-2010 (Figure 6). Many of these countries experienced a fertility decline in the 1980s or even in the 1970s, i.e., Rwanda, Senegal, Côte d’Ivoire, Kenya and Togo, but in recent years fertility stalls have been observed. Several countries experienced incipient fertility

declines or no decline at all: Niger, Chad, Mali and Burundi. If recent trends were to continue, a majority of these countries would still have fertility levels around or above 4 children per woman in 2045-2050.

Fertility Determinants

Fertility outcomes are shaped by two sets of determinants. The intermediate determinants of fertility are essentially socio-economic in nature, and they influence fertility *indirectly*. The proximate determinants of fertility, which are mostly biological and behavioral, influence fertility *directly*.

In most sub-Saharan African countries, the intermediate determinants—levels of education, health status, employment in the formal sector, income levels, urban residence—are still low. Policy interventions in these fields generally bear their fruit with a lag, and their impacts on fertility vary from one country to the next depending on other variables, noticeably family norms, social networks and cultural values. Therefore, the policy objectives such as raising education levels of girls, especially secondary education levels, reducing maternal and child mortality, increasing female labor participation in the formal sector and achieving a more inclusive economic growth must be considered as objectives in themselves, not as proxy policy interventions aimed at rapidly reducing fertility through the proximate determinants.

In African countries, as in other developing countries, fertility levels are generally lower among the most educated and urban women (Bongaarts 2010). However, this has had so far a limited impact on national fertility levels because in most African countries still few women of reproductive age have high education levels (secondary or higher) and urbanization rates remain generally low.

The wealthiest households also have generally lower fertility levels than the poorest ones. A proxy of wealth is calculated in the Demographic and Health Surveys (DHS), through a wealth index constructed by using easy-to-collect data on a household's ownership of selected assets, such as televisions and bicycles, materials used for housing construction, and types of water access and sanitation facilities. The wealth index categorizes households into quintiles (from the lowest to the highest wealth index), which permits examination of the potential benefits of wealth (and of more inclusive growth) on the health and on the wellbeing of households.

Total fertility rates have been calculated according to household wealth index quintiles from DHS data collected in 40 African countries (between 2000 and 2012 for 35 countries and in the mid- or late 1990s for five other countries). Not surprisingly the “wealthiest” households (the 20% of households having the highest wealth index) have fewer children than the “poorest” ones (the 20% of households having the lowest wealth index). The “wealthiest” households have an unweighted average total fertility rate of 3.4 children per woman as compared to 6.4 children for the “poorest” ones, i.e., 3 children less. However, this difference varies greatly from one country to another: from about 5 children in Angola, Zambia and Liberia to less than one child in Egypt, Burundi, Central African Republic and Chad—except Egypt, these are all countries with national high fertility levels. Overall, the differences between the fertility of the “wealthiest” and the “poorest” households are not correlated with national fertility levels. Indeed, fertility remains relatively high even among the “wealthiest” households. Total fertility

rates of the wealthiest households are low and range from 1.9 to less than 2.5 children per women in only 5 countries out of the 40 countries considered here, i.e., Morocco, South Africa, Lesotho, Ghana and Namibia. But in 10 other countries, total fertility rates of the wealthiest households are still between 4 and 6.4 children per women, namely in Uganda, Nigeria, Democratic Republic of Congo, Benin, Guinea, Central African Republic, Mali, Burundi, Chad and Niger. By contrast, total fertility rates of the “poorest” households are above 5 children per woman in most countries (37 out of 40 countries), and they vary from 6 to more than 8 children per woman in 28 countries. Obviously, the family norms favouring large families (expressed by the ideal number of children in the DHS) are still dominant among the “poorest” households. But these norms explain also the relatively high levels of fertility among the wealthiest households in several countries.

Whereas in most countries women from the “wealthiest” households can afford good prenatal care and adequate delivery conditions, this is not the case for women from the “poorest” households. According to the results from the same DHS surveys, in 35 countries out of 40 more than 80% of the women from the “wealthiest” households who gave birth in the three years preceding the survey benefited from the assistance of qualified personnel (doctor and/or health professional) during delivery. By contrast, in a majority of the countries (24 out of 40) less than a third of the women from the “poorest” households benefited from such assistance. In addition to higher incidence of at-risk pregnancies among poor women because of high fertility, these women also have a higher risk of maternal death and/or death of their child.

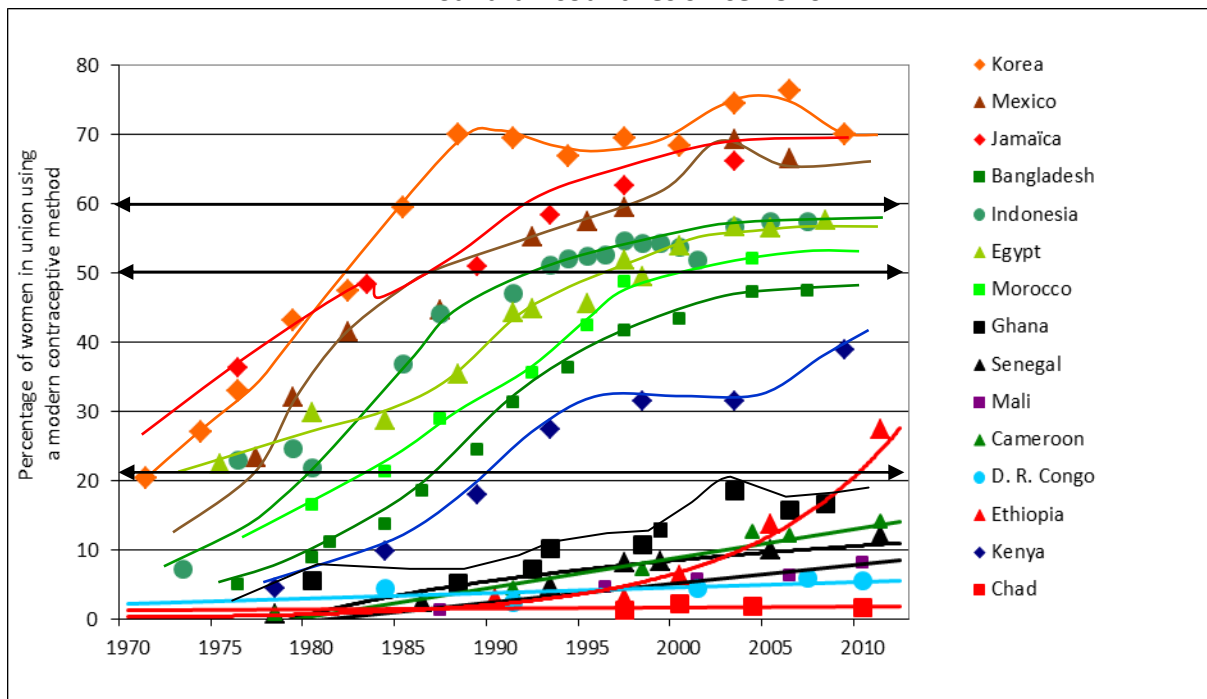
Let us turn now to the *proximate determinants* of fertility. These *determinants* include marriage (unions), postpartum infecundability (or insusceptibility), abortion (induced), contraception (modern and traditional)⁶ and sterility (May 2012). Some of these determinants are more amenable to policy interventions than others, especially when one seeks to obtain results in the short term. It is for this reason that in high fertility countries access to contraception has long stood at the top of the list of population policy interventions. However, one should not underestimate the importance of the other proximate determinants of fertility, namely the postpartum infecundability, which is essentially linked to the duration of breastfeeding (which is decreasing in most countries), the increasing age at marriage (age of entry into union), as well as the recourse to induced abortion especially in countries where access to family services is limited despite a large pent-up demand. Nonetheless, one should keep in mind that the inhibiting effects on fertility of the first two factors often cancel each other—in other words, shorter periods of breastfeeding increase fertility, but higher age at marriage decreases it (Guengant & May 2002; Guengant & May 2011b).

It appears that high fertility levels observed today in most African countries are largely the result of persistent low contraceptive prevalence rates. Conversely, the lower fertility levels observed in most emerging, developing and some of the 13 African countries that have completed or are close to completing their fertility transition, resulted from a rapid increase of the use of contraceptive methods over the past 40 or 50 years, particularly of efficient modern methods—a process that has been called the contraceptive revolution.

⁶ Modern contraceptive methods are hormonal (e.g., pill, implants, and injectable), chemical or mechanical (spermicides, IUDs, and barrier methods such as condoms), or surgical (male and female sterilization).

Figure 7 illustrates the striking gap with respect to the increase in the use of modern contraception since 1970 between emerging market countries, on the one hand, and most SSA countries, on the other. As can be seen, most countries considered here had modern contraceptive prevalence rates of 20% at most around 1970. In the following 30 to 40 years, modern contraceptive rates have increased rapidly to reach at least 50% and in several cases 60% or more in various North African and Asian countries. On the contrary, contraceptive prevalence rates have not reached 20% in a majority of sub-Saharan African countries, although there are a few recent exceptions to this general pattern (e.g., Ethiopia and Rwanda, and to some extent Madagascar). Obviously, the contraceptive revolution has not yet touched most SSA countries.

Figure 7: Progress in the use of modern contraceptive methods in various emerging and sub-Saharan countries since 1970



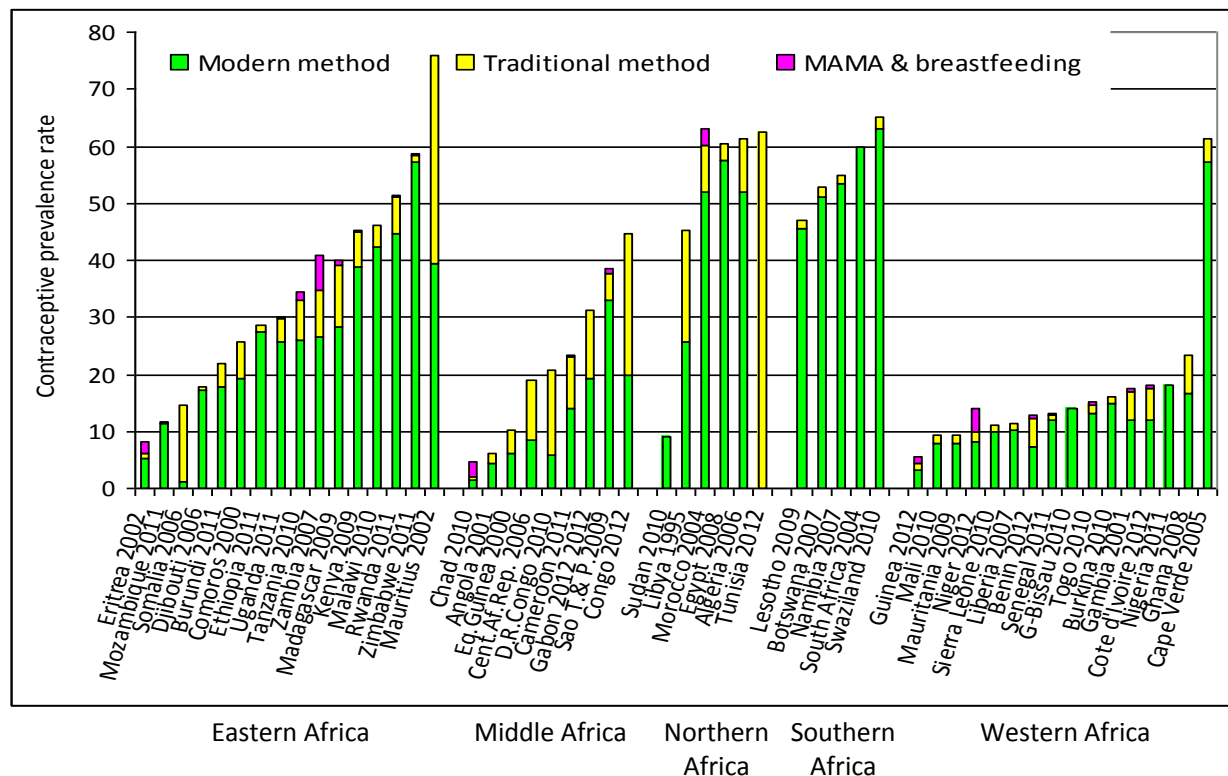
Source: United Nations 2012b, "2012 Update for the MDG Database" Contraceptive Prevalence; see <http://www.un.org/esa/population/unpop.htm> and United Nations Data base

Figure 8⁷ presents the most recent contraceptive prevalence rates (CPR) for 52 out of the 53 African countries studied here, for modern and traditional contraceptive methods (there are no

⁷ For some countries of Figure 8, contraceptive prevalence rates include the "LAM" (lactational amenorrhea method), which is now often regarded as a modern method of contraception, as well as breastfeeding, which is generally considered a traditional method. However, it should be noted that the effectiveness of LAM or "postpartum contraception" is based on three conditions that must be met simultaneously: 1) the baby must be less than 6 months old; 2) the mother must be amenorrheic (not having her periods back); and 3) breastfeeding should be practiced day and night, on demand. LAM is often equated with breastfeeding, and the percentages of LAM users are generally low and unreliable. For comparison purposes, therefore, the percentages of "users" of LAM or breastfeeding have been displayed separately from the percentages of "users" of other methods. In addition, the most recent data given for Sudan, Tunisia, Guinea-Bissau and Nigeria are for all methods.

data for the Seychelles). The corresponding data are recent since they were collected between 2000 and 2012, except for Libya. It should be noted that in some countries modern contraceptive coverage is just a small fraction of traditional contraceptive use. This is the case in particular in Middle African countries.

Figure 8: Most recent contraceptive prevalence rates for African countries by type of method, region and decreasing order of total prevalence



Sources: United Nations 2012b, "Update for the MDG Database" Contraceptive prevalence, and DHS and MICS 4 surveys results (final or preliminary results)

Only 7 countries, accounting for 13% of the continent's population, had a recent contraceptive rate above 60%; they are located in Northern and Southern Africa or are island countries, i.e., Morocco, Egypt, Cape Verde, Algeria, Tunisia, Swaziland, Mauritius and Seychelles. At the other end of the spectrum, 30 countries accounting for 62% of the total population of the continent have a contraceptive rate below 30%, which is less than half the minimum prevalence rate required to achieve the contraceptive revolution and the fertility transition. It is worth noting that all Western African countries but one (Cape Verde) have contraceptive rates below 30%. In sub-Saharan Africa, 78% of the population lives in a country where less than 30% of the women in union use a contraceptive method.

Countries classified as "Convergers" and "New Convergers" generally have contraceptive prevalence rates for all methods above 40%, whereas most "Fragile" countries have contraceptive prevalence rates below 20%. However, among the "Convergers" and "New Convergers" groups, Uganda, Ghana, Burkina Faso, Mozambique and Nigeria have contraceptive prevalence around or below 20%, and rapid increases of contraceptive coverage

will be challenging in these countries. Low levels of fertility in Ghana might be explained by the higher incidence of induced abortion in that country. Ethiopia appears to have been able to increase its contraceptive coverage at a rapid pace (World Bank 2007; Teller & Hailemariam 2011). However, in the majority of the countries listed as “Late Convergents” and in most countries of the “Fragile” group, rapid CPR increases will be a daunting task. Indeed, these countries will need to increase their CPR from 10/20% to 60% or more in less than 40 years in order to achieve their fertility transition by 2050. This is illustrated in a Berlin Institute study, which shows that SSA countries will need CPRs ranging between 50% and 65% by 2050 to reach fertility levels of between 3 and 2 children per woman (Sippel et al. 2011: 58).

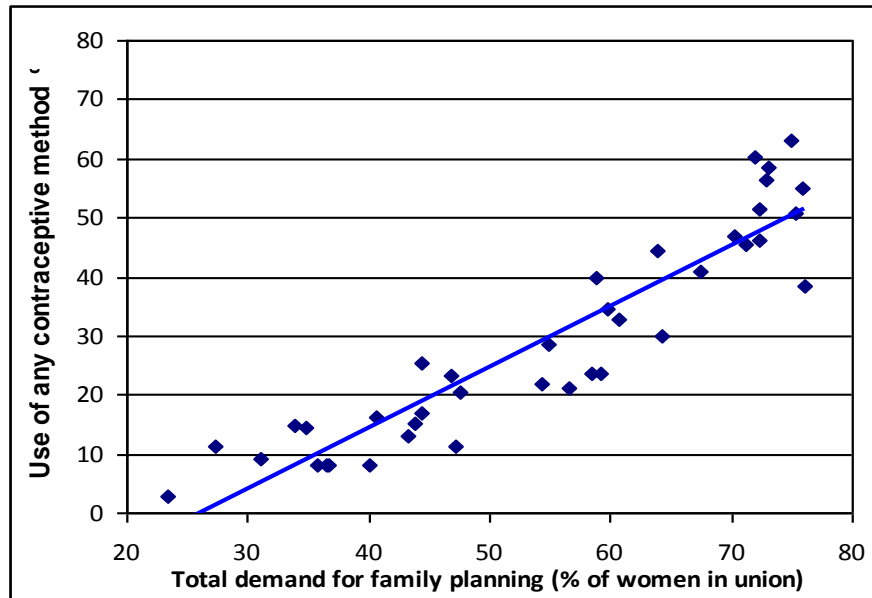
Among the factors that have hindered the rapid expansion of contraceptive coverage in SSA are the lack of information on, and the lack of access to, contraceptives. The reluctance to use modern contraceptives is also rooted in traditional culture, attitudes, norms and family structures, and this is also a key obstacle that family planning programs will need to address in SSA.

In fact, in most SSA countries the total demand for family planning remains rather weak and paradoxically only a small portion of this demand is satisfied, which is reflected by the high levels of unmet needs⁸ estimated on average at about 25 to 30% (Guengant & Rafalimanana 2005).⁹ Relatively recent DHS results for 39 countries confirm this finding, yielding an unweighted average of 25% of unmet need—a figure close to the average current use of any method, i.e., 29%. This yields a total demand of 54%, but with considerable variation between countries: from 23% (in Chad) to less than 60% in a majority of countries (24 out of 39) and to 60 to 82% in 15 countries). However, according to the same surveys, only half (49%) of these needs are satisfied if all methods used are considered and only a third (37%) if one considers only the use of modern and efficient contraceptive methods. Nonetheless, the overall demand for contraception is weak in many countries, which explains the low use of contraception particularly in Western, Middle and Eastern Africa. Clearly a low demand for family planning translates into low use of contraceptive methods, as can be seen in Figure 9 (where there is a strong correlation between the total demand in family planning and the use of any contraceptive method). Consequently, the magnitude of the unmet needs must be appreciated in relation to the total demand. Interestingly, the relationship between the use any contraceptive method and unmet needs is an inverse U-shaped relationship, with a R^2 of 0.43 (see Figure 10).

⁸ Unmet needs for family planning refer to the condition of wanting to avoid or postpone childbearing but not using any method of contraception, and the total demand for family planning refers to the sum of married women using a method of contraception plus those in need but not using any method.

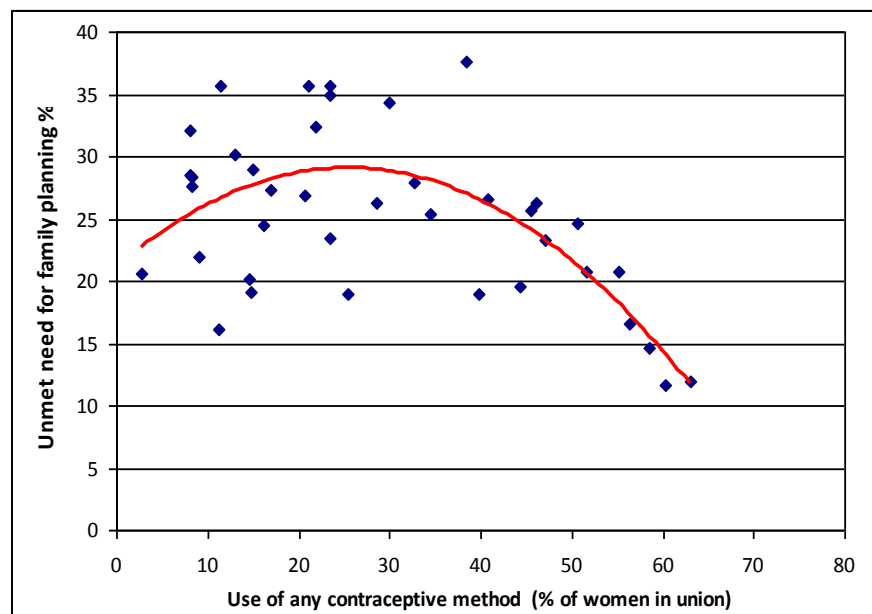
⁹ This is a demand-measure constructed from survey data, which attempts to estimate the percentage of women who want to delay their next pregnancy by two years but do not currently use a contraceptive method. However, the percentage of unmet needs may increase as contraceptives become more readily available.

Figure 9: Relationship between the total demand in family planning and the use of any method of contraception for 39 African countries



Source: DHS surveys results

Figure 10: Relationship between the use of any method of contraception and the unmet needs in family planning for 39 African countries



Source: DHS surveys results

This can be interpreted as follows: At the onset of the fertility transition, not only the use of a contraceptive method but also the idea that it is possible and legitimate to control one's fertility is limited to a small group of couples and women. Next, as the new concept of family planning spreads within the society, the demand can increase more rapidly than the use of a

contraceptive method, especially in countries where counseling and health services are insufficient. Unmet needs may start to decrease slowly after the leading group of contraceptive users reaches 20 to 30% of the women in union. However the percentage of unmet needs seems to remain above 10% of the women in union, until about 60% of the women in union use a contraceptive method. In fact, in most emerging and developing countries where contraceptive rates are above 60%, the percentage of unmet needs is below 10%.

The leading group of contraceptive users is generally made of the more educated and urbanized women, as well as the women from the wealthiest households. The data by quintiles of wealth from the 39 DHS surveys already mentioned confirm this pattern, but they deserve comment. First, the use of a contraceptive method is two times more frequent among women from the wealthiest households than among women from the poorest households, i.e., 41% against 20%, and the same is true for the use of modern method, i.e., 33% against 16%. However, the unmet needs among the women from the wealthiest households remain quite high: 21% on average, and only half (49%) of these needs are satisfied through the use of a modern contraceptive method. Not surprisingly, the situation is worst among women from the poorest households who have a slightly higher percentage of unmet needs (28%), which are even more poorly satisfied, since only a quarter (26%) of these needs are satisfied through the use of a modern contraceptive method. Finally, the total demand in family planning among women from the wealthiest households appears moderately high at 62% (unweighted average) and higher than among women from the poorest households, i.e., 48%, but again there are great variations from one country to the next. For example, the total demand for family planning among women from the wealthiest households varies from a low 35% in Chad to less than 60% in 16 countries out of 39, to 60% to 82% in a majority of countries (i.e., 23 countries). Inversely, among women from the poorest households, total demand for family planning varies from a very low 18% (in Chad again) to less than 60% in a majority of countries (23 out of 39 countries) to 60% to 80% in 13 countries.

To sum up, the low levels of contraceptive use, the rather weak demand for family planning, and the high percentage of unmet needs at the national level, as well as the inequalities between women with respect to these variables can be explained again by the pervasive family norms favouring large families (Romaniuk 2011: 21-22). Indeed, desired fertility in SSA (i.e., the ideal number of children) remains very high even among young women and in many countries even among young women with secondary levels of education. In addition, one should not dismiss the importance of marriage at young ages and sometimes child-marriage as another explanatory factor for the high fertility levels observed in SSA. To a large extent, all this can be construed as a double denial of women's rights: the denial of access to methods and the denial of information on contraception, which translates into the lack of reproductive choices.

This situation is largely the consequence of the lukewarm commitment or lack of engagement vis-à-vis family planning on the part of governments and donors alike. So far only two governments in sub-Saharan Africa, i.e., Rwanda and Ethiopia, appear to have organized successful large-scale programs and/or campaigns in favor of family planning like those organized in several Northern African and Asian countries. Among eight countries surveyed in Western Africa, only half even had a government budget-line item for the procurement of contraceptives (USAID Deliver Project 2011).

Last but not least, persistent high fertility levels in most African countries cause numerous high-risk pregnancies (at least one pregnancy out of two in most cases), which are associated with the four “too”: pregnancies that too early, too often, too close and too late. This translates into very high maternal mortality ratios, high under-five mortality rates, and high proportions of stunted children among the children who do survive. Moreover, the future of these children is compromised because they are less resistant to disease and have more difficulties learning at school (World Bank 2010: 14). These undesirable outcomes affect more the poorest households and jeopardize the chances of most countries to achieve a more inclusive growth and fulfill their development objectives.

Urbanization and mega-cities

Between 1960 and 2010, the urban population of Africa increased by a factor of 8, increasing from 53 to 401 million. Despite this spectacular increase, the levels of urbanization in Africa remain low compared to other regions of the world. In 2010, it was estimated that about 40% of Africans were residing in urban areas, but this percentage was only 23% in Eastern Africa, 41% in Middle Africa, 44% in Western Africa. It was higher than average in Northern Africa (51%) and Southern Africa (59%).

Rapid urbanization in Africa has led to 50 cities with more than a million inhabitants in 2010. Two had an estimated population of more than 10 million inhabitants: Cairo (11 million) and Lagos (10.8 million). In 2010, the United Nations identified 73 African cities with more than 750,000 inhabitants, whose population was projected to surpass one million by 2025, the end-year of the UN projections for these cities (United Nations 2012a). A third (17) of the 53 countries studied did not have a city with more than 750,000 inhabitants in 2010. Among the 36 other countries, 23 had one such city and 13 countries had several (see Annex 1); Nigeria had 14, Morocco 6, South Africa 7 and the Democratic Republic of Congo 5. Nine other countries had two large cities: Kenya, Mozambique, Angola, Cameroon, Congo, Algeria, Egypt, Côte d'Ivoire and Ghana.

Future Population Growth

Africa's population reached the mark of one billion persons in 2009, and the entire continent is expected to have a population ranging from 1.9 to 2.2 or 2.5 billion people by 2050, according to the 2010 United Nations World Population Prospects: Low, Medium, and High fertility variants, respectively (United Nations 2011).

Factors of Future Population Growth

In the forthcoming decades, the region's population (especially in Eastern, Middle and Western Africa) is bound to continue to experience rapid rates of population growth. This will happen for three major reasons.

First, *mortality levels*, which are still high, are expected to continue to decrease. Between 1980 and today, infant and child mortality levels have declined by roughly half in Africa, particularly in sub-Saharan Africa. This is due to decisive exogenous interventions such as vaccination campaigns, oral-rehydration therapy programs, large-scale distribution of impregnated malaria

bed-nets, the provision of nutritional supplements and comprehensive sanitation programs. However, despite recent progress in reducing under-five mortality levels, there is still much room for improvement. Moreover, progress on adult mortality has been less spectacular, and many SSA countries must now confront the dual pattern of communicable *and* non-communicable diseases (NCDs). Northern African countries must face mostly the challenge of NCDs, which is also linked to the aging of their population.

In addition, some SSA countries have been badly impacted by the HIV/AIDS epidemic, especially Southern Africa countries and their neighbors. Fortunately, the demographic impact of HIV/AIDS has been less severe than anticipated initially, although the HIV/AIDS epidemic has slowed down the rate of population growth in the most affected areas, i.e., Southern Africa, which have also experienced rapid fertility declines. Nonetheless, up to 2010, there has been no population decline due to HIV/AIDS in the countries severely affected by the epidemic (10% HIV prevalence or more), and the demographic impact of the epidemic has been negligible elsewhere (5% HIV prevalence and less). Actions to prevent the spread of HIV/AIDS and programs geared at reducing adult mortality are expected to continue in the foreseeable future. These interventions should foster continued population growth in most countries. However, one should keep in mind that mortality rates could stop declining or even increase as happened in certain countries in recent decades, because of major climatic catastrophes, widespread famines or severe political disruption. Despite these risks, it is unlikely that this situation would translate into population stagnation or decline because, with few exceptions, future demographic growth is primarily driven by high fertility and young age structures.

Second, *fertility levels* are still high in most countries and are only declining gradually. As discussed above, 40 out of 53 countries, representing 78% of the total population have fertility rates ranging from 4 to nearly 8 children per woman. Among the 13 remaining countries with less than four children per woman, only three, i.e., Mauritius, Seychelles and Tunisia, have reached replacement level fertility of 2.1 children per woman.

The future dynamic of the total population growth of each country will be essentially determined by future levels of fertility. Fertility will decline more or less rapidly, depending on several factors. First, initial levels of total fertility rates (TFRs) will determine future trends of population growth: the higher the initial levels of fertility, the higher the potential population growth by year 2050. Second, population growth in the forthcoming decades will depend also on the percentage of youth in the population (since these young people are moving into the union-marrying and fertility age brackets) and on the pace of demographic growth in this age group (phenomenon known as the *population momentum*, see below). Third, rates of increase of contraceptive prevalence rates (CPRs), especially for modern methods, will largely determine the future pace of decline of fertility. Fourth is the phenomenon of *population momentum* (also called *demographic momentum*), which is an *additional* population growth factor usually resulting from a youthful age structure. The population momentum is positive when the age structure is young and there are disproportionate numbers of people in childbearing age groups because of past high fertility levels. This is the case in most sub-Saharan African countries where about two-thirds of the total population is less than 25 years old. The population momentum is a powerful factor for future demographic growth. Even if a country with a young age structure would immediately reach replacement level fertility (i.e., about 2.1 children per

woman – depending on current mortality patterns), its population would continue to grow for about 70 years and would still *double* in size (World Bank estimates).

The very few African countries that have completed their demographic transition (Mauritius, Seychelles and Tunisia) are now confronted with the arrival into retirement ages of the large cohorts of the 1950s. These countries, as well as other countries in Northern and Southern Africa, will need in the near future to strengthen social security systems, pension schemes and safety net programs to cope with the rapid increase of their population aged 65 years and more. Such actions and programs are needed because their *elderly support ratio* (i.e., the number of working-age people aged 15-64 or 20-64, divided by the number of persons 65+) will decrease in the coming decades. All African countries will experience rapid increases of their populations aged 65+ years in the coming decades because of the unrelenting increase of their young population since the 1950s (Chesnais 1990). Therefore, all countries should start to design social policies that will be needed to address this phenomenon, another legacy of the past neglect of the population factor (May 2012).

The urban population will continue to grow even faster than the total population because of the ongoing urbanization process. Future growth of the urban population will be driven by both natural increase and rural urban migration. The cities of the continent have now reached such size and youthfulness that their natural increases exceed rural urban migration, despite lower fertility levels in urban areas. But rural-urban migration will continue, and it will be higher if fertility and population growth remain high in rural areas. In short, future urban population growth is not independent of rural population growth. Fertility levels will have a major impact on the dynamics of urban, as well as, rural populations. For example, in Côte d'Ivoire, Ghana and Nigeria, where about half the population is already urban, urbanization will continue, and urban populations will keep growing, even if fertility levels decline rapidly. In these countries, rural populations can stabilize in a less distant future (about 20 years) if fertility declines rapidly. In a few countries, however, urbanization rates are expected to level off.

It is expected that *international migration* will have a negligible impact on population growth and dynamics, except in small island settings where emigration acts as a safety-valve. Nonetheless, remittances of African diaspora emigrants can have an important economic impact, as already mentioned.

The United Nations Population and Urbanization Projections

This section presents for Africa the 2010 United Nations Population Division World Population Prospects, which were released in May 2011 as well as the 2011 UN World Urbanization Prospects, released in 2012. These World Population Prospects are revised every two years. The next revision, taking into account new data published since 2010 will be published in 2013. The World Urbanization Prospects will be updated in 2014.

These projections, which are widely used, are the results of the combination of several assumptions: one for mortality, one for international migration and one for urbanization tailored for each country, combined with three different scenarios of fertility decline: Medium, High, Low, plus a Constant-fertility variant assumption (United Nations 2011). In the 2010 World Population Prospects, future fertility levels for the Medium variant were supposed to

converge in a more or less distant future (in some cases beyond 2100) toward fertility replacement levels, depending on the country level of fertility in 2005-2010 according to three different patterns of fertility transition. The first pattern corresponds to “High-fertility countries” that until 2010 were still at the early stage of their fertility transition (about 10 African countries). The second pattern concerns countries where fertility has been declining but whose estimated levels were still above 2.1 children per woman in 2005-2010. Nearly 40 African countries belong to that group, but most of them have had much slower fertility declines in the past decades than other countries of this group. In addition, some of them have recently experienced stalls in their fertility decline. The Low-fertility group concerns countries where total fertility rates were at or below 2.1 children per woman. Worldwide, nearly 80 countries (40%) belong to this group, which comprises only three African countries: Mauritius, Seychelles and Tunisia.¹⁰ Under the high variant, fertility is projected by convention to remain 0.5 children above the Medium fertility variant over most of the projection period and 0.5 children below the Medium variant for the Low fertility variant.

The Medium variant is not necessarily the most probable scenario. As the United Nations states, “future trends cannot be known with certainty.” That is the reason why several projections variants are produced, including the Constant-fertility variant, which indicates what would happen if fertility were to stay at its 2005-2010 levels. The United Nations also produces every two years a report “World Urbanization Prospects,” using the results of the preceding year’s World Population Prospects (United Nations 2012a). The 2011 World Urbanization Prospects provided estimates for urban areas and various cities of the world based on the Medium population estimates of the 2010 World Population Prospects. Finally, the 2010 World Population Prospects and the 2011 World Urbanization Prospects are based on the most recent population data available for each country in 2010 and 2011, respectively.

The 2010 United Nations Assumptions on Population and Urbanization

The 2010 United Nations World Population projections’ assumptions until 2050 (one assumption for mortality and international migration, and three assumptions for fertility decline: Medium, High and Low) are presented in Table 1 for the five sub-regions of the continent. The assumption made for urbanization until 2050 in the 2011 United World Urbanization projections is also presented. It should be noted that these regional and sub-regional assumptions are the result of the assumptions made for each variable at the country level.

¹⁰ For more details on the assumptions underlying the 2010 revision of the United Nations population projections, see http://esa.un.org/unpd/wpp/Documentation/pdf/WPP2010_ASSUMPTIONS_AND_VARIANTS.pdf.

Table 1: Assumptions made in the 2010 United Nations population projections and the 2011 United Nations urbanization projections for Africa and African sub-regions until 2050

	Initial values	Medium variant	High Variant	Low Variant
Periods	2005-2010	2045-2050	2045-2050	2045-2050
Total fertility rate (number of children per woman)				
Africa	4.64	2.77	3.25	2.29
Sub-Saharan Africa	5.10	2.85	3.34	2.37
Eastern Africa	5.11	2.89	3.37	2.41
Middle Africa	5.67	2.52	3.01	2.02
Northern Africa	2.97	2.03	2.52	1.55
Southern Africa	2.64	1.79	2.29	1.29
Western Africa	5.48	3.27	3.76	2.77
Life expectancy at birth, both sexes combined (years)				
Africa	55.2	68.2		
Sub-Saharan Africa	52.5	66.7		
Eastern Africa	54.4	68.0		
Middle Africa	48.5	62.9		
Northern Africa	69.4	77.1		
Southern Africa	51.3	64.1		
Western Africa	52.3	66.7		
Net migration (per year), both sexes combined (thousands)				
Africa	-628	-440		
Sub-Saharan Africa	-397	-312		
Eastern Africa	-365	-108		
Middle Africa	+7	+22		
Northern Africa	-204	-141		
Southern Africa	+138	+5		
Western Africa	-205	-174		
Percentage of population residing in urban areas				
Years	2010	2050		
	Initial values	Medium variant		
Africa	39.2	57.7		
Sub-Saharan Africa	36.3	56.5		
Eastern Africa	23.3	44.7		
Middle Africa	40.9	61.5		
Northern Africa	51.2	65.3		
Southern Africa	58.5	74.0		
Western Africa	44.3	65.7		

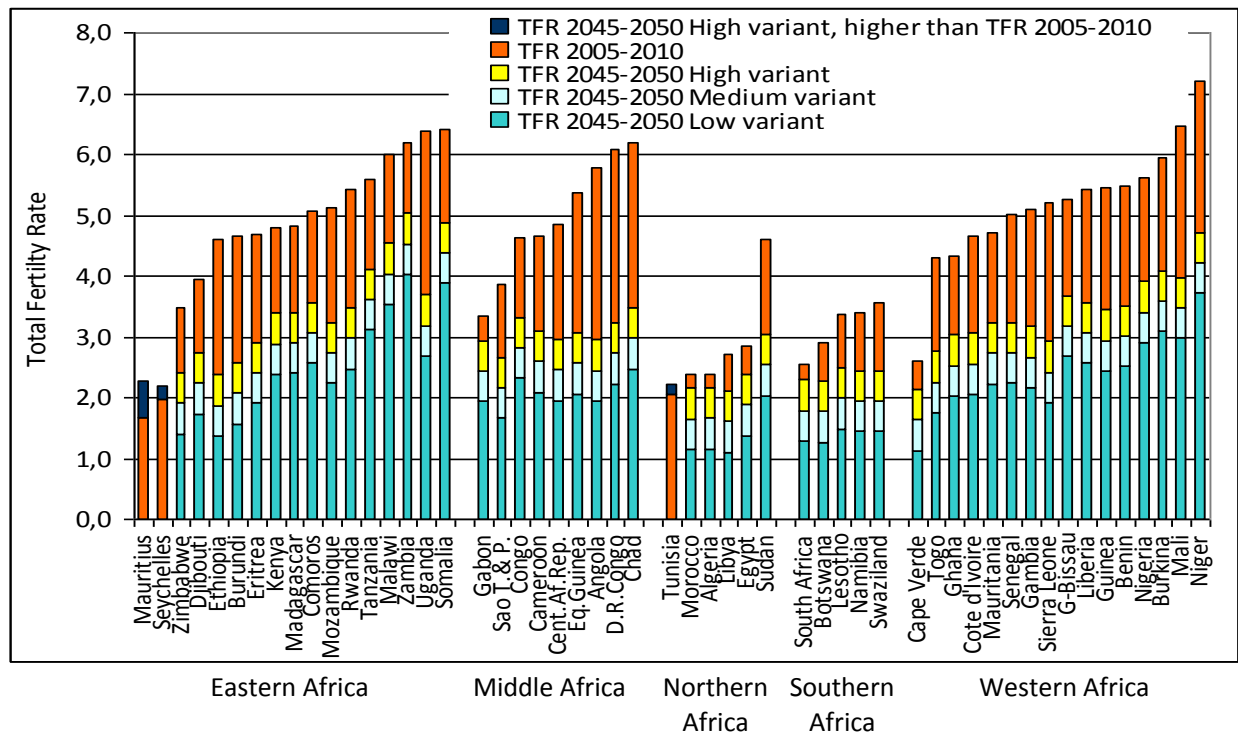
Sources: United Nations 2011 and 2012a

Under the Medium variant, the TFR for Africa decreases by 1.9 children between 2005-2010 and 2045-2050 (from 4.6 to 2.8 children per woman), and by 2.3 children for sub-Saharan Africa (from 5.1 to 2.9 children per woman). The most rapid decline: minus 3.2 children over the 40 years period considered, is projected for Middle Africa, and the least rapid declines are those

projected for Northern and Southern Africa: minus 0.9 children in both cases. By construction, the fertility declines projected for the High variant are 0.5 children higher than the decline of the Medium variant and 0.5 children less with the Low variant.

These figures are the weighted average of the fertility assumptions made for each country. Initial total fertility rates (the 2005-2010 TFRs) were estimated on the basis of the information available for each country in 2010. Then, as already explained, the Medium variant was built by projecting these TFRs up to 2045-2050 according to three models of decline, yielding varying fertility declines between 2005-2010 and 2045-2050. Next, the High and Low variants were derived from the Medium variant. The corresponding figures are presented in Figure 11. With the Medium or central variant, TFRs are projected to remain above 3 children per women by 2045-2050 for a quarter of the countries (13). But with the High variant, TFRs are projected to remain above 3 children per woman in more than half of the countries (29 countries or 55% of the population), which is above what can be considered as the minimum level necessary to have lower dependency ratios. With the Low variant, only six countries (11%) have TFRs above 3 children per woman (these are countries with initial high TFRs and in four cases landlocked countries). For the 40 years considered, these 2045-2050 projected TFRs imply for the Medium variant a decline of 2 to 3.3 children for half of the countries (28 or 53%), for the Low variant a decline of 2 to 2.8 children for 40 countries (75%), and for the High variant of a decline of 2 to 3.8 children for 11 countries (21%).

Figure 11: Low, Medium and High total fertility rates assumptions in 2045-2050 compared with the total fertility rates estimated in 2005-2010 by increasing order for each region



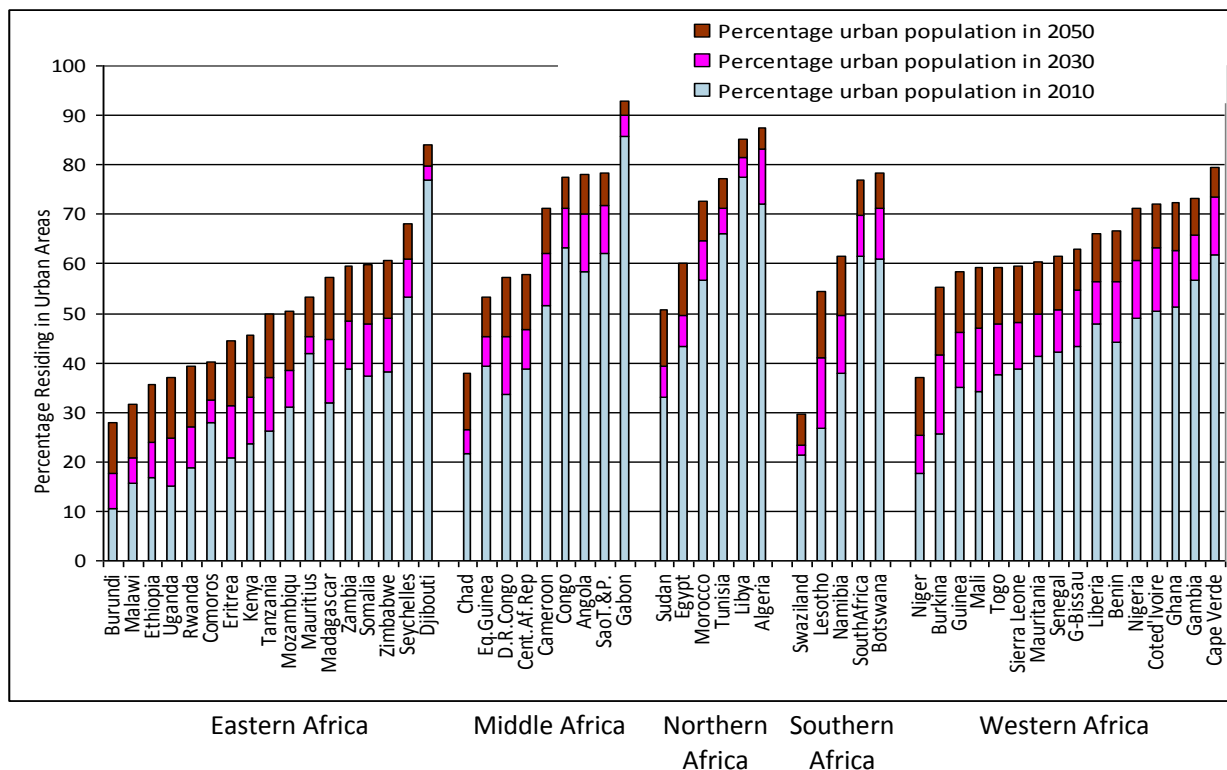
Source: United Nations 2011

These fertility declines appear rather optimistic for many countries given the recent fertility trends observed (see Figures 4 and 6) and the persistent low levels of contraceptive use associated with them (see Figures 7 and 8). Based on this evidence, for many countries fertility might well decline more slowly than anticipated under the 2010 UN Medium variant, and for several countries (e.g., in the Sahel), even more slowly than anticipated under the 2010 UN High variant. This point is important because if fertility declines are slower than those projected under the Medium or even the High variants, dependency ratios will remain high, which will prevent many countries from achieving the demographic prerequisites needed to capture a demographic dividend.

Concerning urbanization, the initial percentages of the population living in urban areas in 2010 in each African country and their future levels were estimated and projected to 2050 by the United Nations in their 2011 World Urbanization Prospects (United Nations 2012a). These data are presented in Figure 12. The projected percentage increases of the population living in urban areas vary of course from one country to another, depending on several factors (initial percentages, past trends, etc.)¹¹ Given the relatively low levels of urbanization of many African countries in 2010, the projected percentage increases are relatively large. They range from 20 to 30 percentage points for 21 countries between 2010 and 2050 and between 10 percentage points and less than 20 percentage points for half (28) of the countries. The increase is less than 10 percentage points only for Gabon, Djibouti, Libya (which had high urbanization rates in 2010) and Swaziland. As a result, whereas in 2010 only one country out of three (17) had a majority of its population living in urban areas (all coastal countries but one, Botswana), in 2050 there will be 42 countries, four out of five, with a majority of their population living in urban areas. Among the 11 remaining countries with a majority of their population still living in rural areas by 2050, most are Eastern African countries, and most are landlocked countries (Burundi, Swaziland, Malawi, Ethiopia, Rwanda, Uganda, Niger and Chad). Overall this means that a majority of African people will be living in urban areas by 2035 and nearly 60% by 2050 (58% in sub-Saharan Africa).

¹¹ For more details, see World Urbanization Prospects, The 2011 Revision, Methodology http://esa.un.org/unpd/wup/pdf/WUP2011_Methodology.pdf.

Figure 12: Projected percentage of the population residing in urban areas between 2010 and 2050 of African countries, by increasing order for each region



Source: United Nations 2012a

Projected Total Population

Keeping these assumptions in mind, we can now examine the future total population of Africa in 2030 and 2050. First, between 2010 and 2030, the population of the continent will increase roughly from 1 billion in 2010 to 1.5 billion with the Low variant or to 1.7 billion with the High variant (and up to 1.8 billion if we consider the Constant-fertility variant). An increase of at least half a billion people in 20 years, represents a big challenge for many sectors, including health, education, food security and infrastructure.

By 2050, the continent’s population will reach roughly 2 billion with the Low variant, 2.5 billion with the High variant and up to 3 billion if we consider the Constant-fertility variant (see Table 2). This means that, because of the factors of growth examined before (initial high levels of fertility and youthfulness of the population of most countries), the population of Africa will increase dramatically in the next 40 years, doubling or tripling. The difference of half a billion between the Low and the High fertility variants is mainly the result of the faster fertility decline associated with the Low fertility variant compared to the High fertility variant, which translates into a much slower increase in the number of births and children. However, this slowing down will not prevent continued population growth and rapid increases of young adults and the labor force (more on this later). Between 2010 and 2050, the share of Northern and Southern Africa in the total population will decrease markedly from 21% to 13% for Northern Africa, and from 6% to 3% for Southern Africa. This is due to their initial lower levels of fertility and lower rates

of future growth. By contrast, the total share of Eastern, Middle and Western Africa will increase from 74% to 84%.

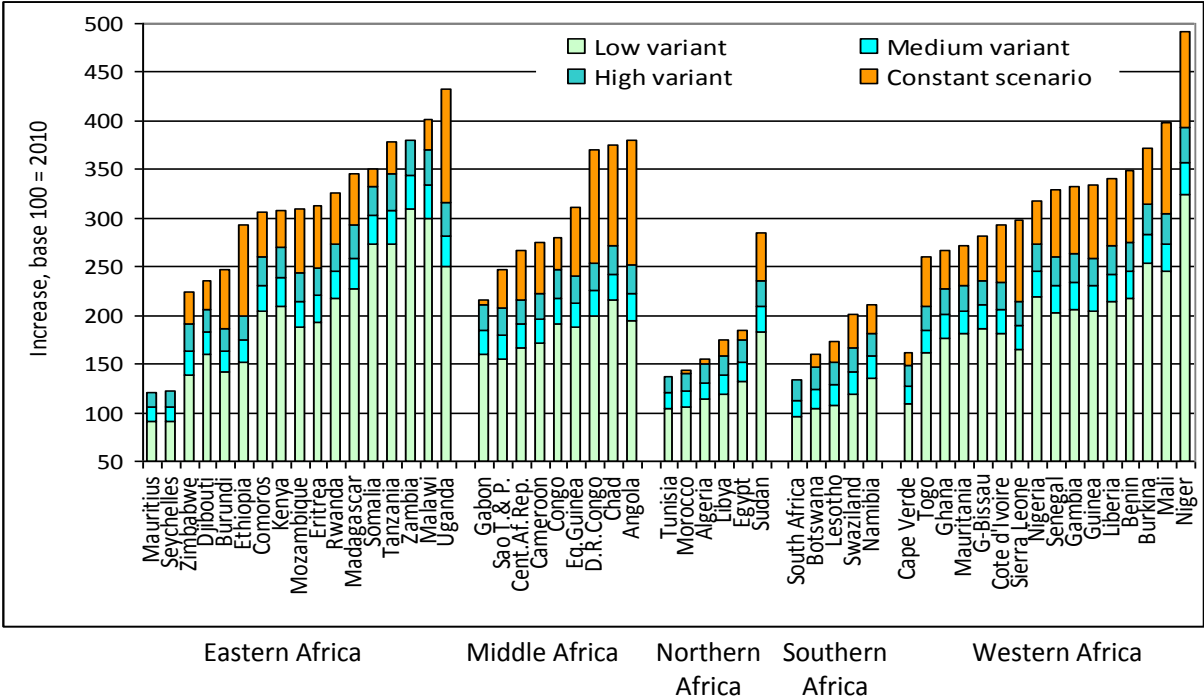
Of course, future total population increases between 2010 and 2050 vary from one country to another as seen in Figure 13. With the Low variant, most countries of Eastern, Middle, Western Africa and Sudan will experience an increase in their total population of 50% to 100%. But with the High variant, these countries will experience at least a doubling of their population (and even a tripling if we consider the Constant-fertility variant). Only the Northern and Southern countries (with the exception of Sudan) and the three island countries (Cape Verde, Mauritius and Seychelles), which are already well advanced in their fertility transition, will experience lower increases. Under the Low variant, the population of Mauritius, Seychelles, Tunisia and South Africa could decrease slightly, but this corresponds to the assumption that the TFRs of these countries will remain for a long time under the replacement level. Finally, with the Medium variant, there is no population decrease in any country.

Table 2: Projected total population by 2050 of Africa and African regions according to the variants adopted in the 2010 United Nations population projections

	2010	Low variant 2050	Medium variant 2050	High Variant 2050	Constant variant 2050
Total population (in thousands)					
Africa	1 020 650	1 929 690	2 189 117	2 466 930	2 993 939
Sub-Saharan Africa	811 721	1 650 342	1 867 560	2 099 714	2 594 286
<i>% sub-Saharan Africa</i>	<i>79.5%</i>	<i>85.5%</i>	<i>85.3%</i>	<i>85.1%</i>	<i>86.7%</i>
Eastern Africa	322 994	685 549	778 037	877 023	1 073 293
Middle Africa	126 689	245 146	278 350	313 955	441 545
Northern Africa	208 929	279 348	321 557	367 216	399 653
Southern Africa	57 780	56 680	67 327	79 083	81 199
Western Africa	304 257	662 967	743 846	829 652	998 250
Increase 2010 - 2050					
Africa	1.00	1.89	2.14	2.42	2.93
Sub-Saharan Africa	1.00	2.03	2.30	2.59	3.20
Eastern Africa	1.00	2.12	2.41	2.72	3.32
Middle Africa	1.00	1.94	2.20	2.48	3.49
Northern Africa	1.00	1.34	1.54	1.76	1.91
Southern Africa	1.00	0.98	1.17	1.37	1.41
Western Africa	1.00	2.18	2.44	2.73	3.28
Percentage in total population					
Africa	100.0%	100.0%	100.0%	100.0%	100.0%
Sub-Saharan Africa	79.5%	85.5%	85.3%	85.1%	86.7%
Eastern Africa	31.6%	35.5%	35.5%	35.6%	35.8%
Middle Africa	12.4%	12.7%	12.7%	12.7%	14.7%
Northern Africa	20.5%	14.5%	14.7%	14.9%	13.3%
Southern Africa	5.7%	2.9%	3.1%	3.2%	2.7%
Western Africa	29.8%	34.4%	34.0%	33.6%	33.3%

Source: United Nations 2011

Figure 13: Projected increase of total population between 2010 and 2050 (base 100 = 2010) of African countries according to fertility scenarios, by increasing order for each region



Source: United Nations 2011

Projected Urban Population and Mega-Cities

What will be the corresponding urban population increases? The 2011 World Urbanization Prospects applied the projected percentages of urbanization only to the Medium variant projections, but in this paper we have explored the combined impacts of increased urbanization and fertility decreases on future urban growth, according to the High, Medium, and Low, as well as the Constant-fertility variants. At the continental level, the urban population will increase from 400 million in 2010 to about 750 million in 2030 with the Low variant, or to nearly 800 million with the High variant, and above 800 million if we consider the Constant-fertility variant. These increases correspond more or less to a doubling of the urban population in the next 20 years. This represents a big challenge for governments and urban planners in terms of infrastructure, services, job creation, transportation, sanitation and security.

By 2050, with nearly 60% of African people living in urban areas, the continent’s urban population will reach between 1.1 billion with the Low variant and 1.4 billion with the High variant (and up to 1.7 billion if we consider the Constant-fertility variant) (see Table 3). This means that because the combined effects of increased urbanization and high fertility levels, the African urban population will more or less triple in the next 40 years (or even quadruple if fertility declines are slower than anticipated in the High variant). But because of their initial lower levels of urbanization, the urban populations of Eastern, Middle and Western Africa will grow more rapidly, and they will be multiplied by a factor of 4 to 5 by 2050 (and more in the High variant). The urban population of these three regions will represent 82% of the urban population of the continent by 2050, compared to 65% in 2010.

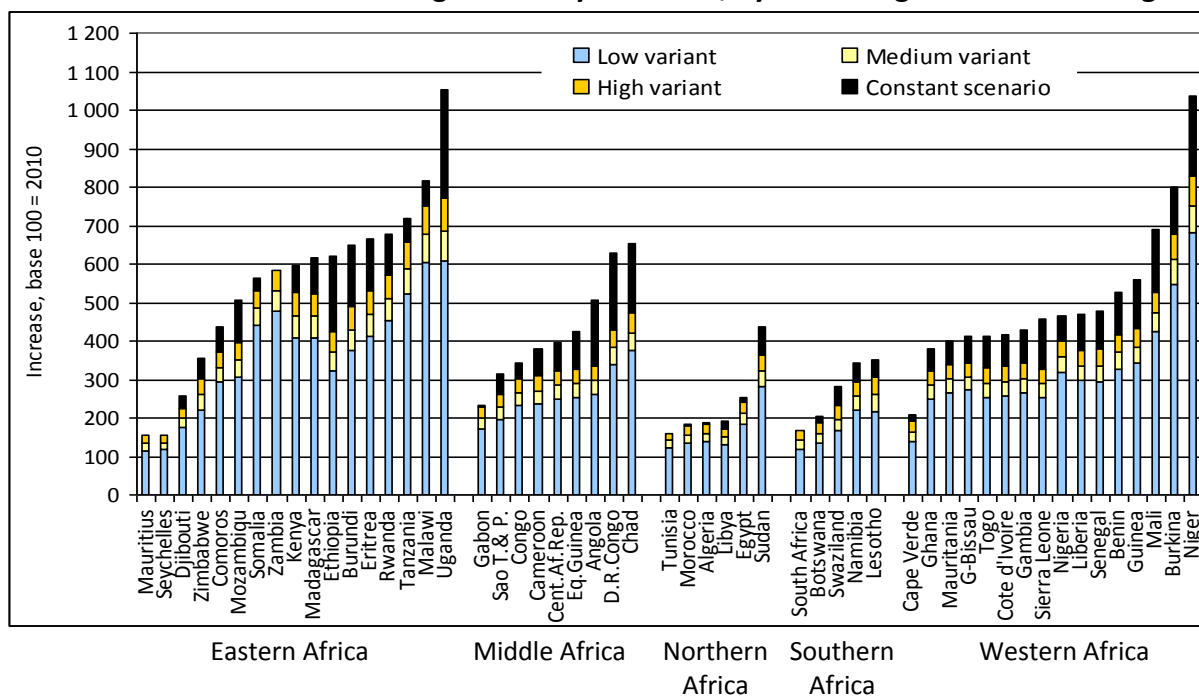
Table 3: Projected urban population by 2050 of Africa and African regions according to the variants adopted in the 2010 and 2011 United Nations population and urbanization projections

	2010	Low variant 2050	Medium Variant 2050	High variant 2050	Constant variant 2050
Urban population (in thousands)					
Africa	400 833	1 115 461	1 265 942	1 427 156	1 712 781
Sub-Saharan Africa	295 726	936 212	1 059 405	1 191 101	1 458 400
<i>% sub-Saharan Africa</i>	<i>73.8%</i>	<i>83.9%</i>	<i>83.7%</i>	<i>83.5%</i>	<i>85.1%</i>
Eastern Africa	75 279	308 254	349 627	393 908	473 895
Middle Africa	51 861	150 533	171 083	193 135	270 744
Northern Africa	105 106	179 249	206 537	236 056	254 381
Southern Africa	33 778	41 928	49 810	58 517	59 746
Western Africa	134 809	435 497	488 885	545 541	654 015
Increase 2010 – 2050					
Africa	1.00	2.78	3.16	3.56	4.27
Sub-Saharan Africa	1.00	3.17	3.58	4.03	4.93
Eastern Africa	1.00	4.09	4.64	5.23	6.30
Middle Africa	1.00	2.90	3.30	3.72	5.22
Northern Africa	1.00	1.71	1.97	2.25	2.42
Southern Africa	1.00	1.24	1.47	1.73	1.77
Western Africa	1.00	3.23	3.63	4.05	4.85
Percentage in total urban population					
Africa	100.0%	100.0%	100.0%	100.0%	100.0%
Sub-Saharan Africa	73.8%	83.9%	83.7%	83.5%	85.1%
Eastern Africa	18.8%	27.6%	27.6%	27.6%	27.7%
Middle Africa	12.9%	13.5%	13.5%	13.5%	15.8%
Northern Africa	26.2%	16.1%	16.3%	16.5%	14.9%
Southern Africa	8.4%	3.8%	3.9%	4.1%	3.5%
Western Africa	33.6%	39.0%	38.6%	38.2%	38.2%

Sources: United Nations 2011 and 2012a

At the country and sub-regional levels, urban population increases between 2010 and 2050 will vary also according to fertility assumptions (see Figure 14). Most Eastern, Middle, Western African countries and Sudan will see their urban populations multiplied by a factor of 3 to 7, depending on the fertility decline variant considered (and by a greater factor with the Constant-fertility variant). The increases will be more important in most Eastern countries because they had the lowest urbanization rates in 2010. Conversely, increases will be more modest in Northern and Southern countries because they had generally higher urbanization rates in 2010. In these countries, urban populations will be multiplied roughly by a factor between 2 and 3 in the next 40 years.

Figure 14: Projected increase of urban population between 2010 and 2050 (base 100 = 2010) of African countries according to fertility scenarios, by increasing order for each region



Source: United Nations 2012

These rapid increases in urban populations will be associated with the advent of several cities of more than 5 million people, as well as mega-cities of more than 10 million people. The 2011 World Urbanization Prospects offer projections of the population of cities of more than 750,000 inhabitants in 2010 up to 2025. The many uncertainties surrounding this type of projection explain why they have been limited to a projection span of 15 years. However, in this paper, we have tried to explore the possible future size of these cities up to 2050. To reach this objective, it is possible to combine the results of the three projections of the urban population (according to the Low, Medium and High fertility variants) presented above, with varying estimated share of each city in the country's urban population. However, in order to avoid having too many scenarios, we have focused on the "possible" populations of major cities in 2030 and 2050 using the Medium fertility variant and assumed that the United Nations-estimated share of each city in the country's urban population in 2025 will remain constant until 2050. The results are presented in Table 4.

Table 4: Projected population of African cities with more than 5 million inhabitants in 2010, 2030, and 2050

Country	City	% in urban population In 2010	Population Million in			Ratio 2050/2010
			2010	2030	2050	
Ethiopia	Addis Ababa	20.0%	2.9	5.7	10.3	3.5
Kenya	Nairobi	34.0%	3.2	7.4	15.1	4.7
Madagascar	Antananarivo	30.0%	1.9	4.7	9.2	4.8
Malawi	Lilongwe	33.0%	0.7	1.9	5.2	7.0
Somalia	Mogadishu	50.0%	1.4	3.9	8.4	5.9
Tanzania	Dar es Salaam	30.0%	3.4	9.1	20.7	6.1
Uganda	Kampala	30.0%	1.6	4.4	10.4	6.6
Zambia	Lusaka	35.0%	1.7	4.1	9.4	5.5
Angola	Luanda	47.0%	4.8	10.2	15.5	3.2
Cameroun	Yaoundé	25.0%	2.3	4.5	6.8	3.0
	Douala	25.0%	2.3	4.5	6.8	2.9
DR Congo	Kinshasa	36.0%	8.4	17.3	30.6	3.6
	Lubumbashi	6.8%	1.5	3.3	5.8	3.9
	Mbuji-Mayi	6.6%	1.4	3.2	5.6	3.9
Egypt	Cairo	31.0%	11.0	16.4	23.0	2.1
	Alexandria	13.0%	4.4	6.9	9.6	2.2
Sudan	Khartoum	41.0%	4.5	8.2	14.2	3.2
South Africa	Johannesburg	13.1%	3.8	5.0	5.7	1.5
	Cape Town	12.0%	3.5	4.6	5.2	1.5
	Ekurhuleni	11.5%	3.3	4.4	5.0	1.5
Burkina	Ouagadougou	50.0%	1.9	6.0	12.9	6.8
Cote d'Ivoire	Abidjan	42.5%	4.2	8.0	12.5	3.0
Ghana	Accra	21.0%	2.5	4.8	7.5	3.0
	Kumasi	17.0%	1.9	3.9	6.0	3.1
Guinea	Conakry	52.0%	1.7	3.8	7.0	4.1
Mali	Bamako	36.0%	1.9	4.5	9.0	4.6
Niger	Niamey	50.0%	1.2	3.9	10.3	8.4
Nigeria	Lagos	14.2%	10.8	22.3	39.5	3.7
	Kano	4.3%	3.3	6.7	12.0	3.7
	Ibadan	3.8%	2.9	6.0	10.6	3.7
	Abuja	3.0%	2.0	4.7	8.3	4.1
	Port Harcourt	2.6%	1.8	4.1	7.2	4.0
	Kaduna	2.1%	1.5	3.3	5.8	4.0
	Benin City	1.8%	1.3	2.8	5.0	3.8
Senegal	Dakar	60.0%	2.9	6.1	10.5	3.6
Number of cities with more than		5 million	3	15	35	
		10 million	2	4	15	

Sources: United Nations 2012a and calculations of the authors

With the Low and High variants the city populations obtained in 2050 are around 10% lower or higher than the populations obtained with the Medium variant. In addition, if by 2050 the share in the urban population of each city considered would be higher or lower (by 1 to 5 percentage points, depending on the city) than the share estimated for 2025, then the city population obtained with the Low and High variants for 2050 could be between 20-30% lower or higher than the population obtained with the Medium variant. This margin of uncertainties of 20-30% should be kept in mind when looking at the results presented in Table 4.

These results indicate that while Africa had only two mega-cities in 2010, i.e., Cairo (11 million) and Lagos (10.8 million), the continent might have four mega-cities and 11 cities of 5-10 million inhabitants by 2030 and 15 mega-cities and 20 cities with a population between 5 and 10 million people in 2050. These 15 mega-cities would represent 20% of the African urban population and 11% of the total population of the continent. This means that one urban African out of five would live in a mega-city (of more than 10 million people) in 2050, compared to 5% in 2010, and one African out of ten (11%) would live in a mega-city in 2050, compared to 2% in 2010. In 2050, the four largest cities could be (in four different regions): Lagos with nearly 40 million; Kinshasa, 31 million; Cairo, 23 million; and Dar es Salaam, 21 million. In Southern Africa, the largest city could be Johannesburg with 6 million people.

It is difficult to envision the magnitude of the problems that will be associated with the rapid urbanization of Africa and the emergence large cities and mega-cities. However, one should note that the difficulty of living in urban settings and large cities has long been compensated by the adoption of urban practices and the vitality of social networks. But these are weakening, and the social control that regulated internal tensions has lost part of its strength. Having worked as a rather inclusive machine, African cities are now more and more a place of exclusion, especially from the modern labor market (Dubresson & Raison, 2003: 121). This exclusion process fosters the growing criminalization of many African urban economies.

Projected Population of Children and Youth

As indicated above, the continent's population will increase from 1 billion in 2010 to 1.5 to 1.7 billion by 2030 and to 2 to 2.5 billion by 2050, depending on the fertility decline variant considered. The total population will continue to increase rapidly, but the difference of half a billion people in 2050 between the Low and the High fertility variants requires some analysis. This difference is mainly the result of the faster fertility decline associated with the Low fertility variant compared to the High fertility variant, which translates into a much slower increase of the number of births and children in the age groups 0-4 and 5-14.

In 2010, there were 411 million children aged 0-14 years in Africa (155 million children aged 0-4 years and 256 million children aged 5-14 years). By 2030, under the Low fertility variant there will be 486 million (170 million aged 0-4 years and 316 million aged 5-14 years) but 626 million (227 million aged 0-4 years and 399 million aged 5-14 years) under the High fertility variant.

By 2050, under the Low fertility variant there will be 520 million children aged 0-14 years (174 million aged 0-4 years and 346 million aged 5-14 years) but 839 million (302 million aged 0-4 years and 537 million aged 5-14 years) under High fertility variant, that is 329 million more (see Table 5). In both cases, the number of children will continue to increase, but it will increase

much faster under the High fertility variant. These differences raise the following question: What are the advantages, if any, of the Low the fertility variant?

Table 5: Projected population aged 0-14 years by 2050 of Africa and African regions according to the variants adopted in the 2010 United Nations population projections

	2010	Low variant 2050	Medium variant 2050	High variant 2050	Constant variant 2050
Population aged 0-14 years (in thousands)					
Africa	411 265	519 780	670 595	838 717	1 238 240
Sub-Saharan Africa	345 292	473 880	603 481	747 109	1 122 545
<i>% Sub-Saharan Africa</i>	<i>84,0%</i>	<i>91,2%</i>	<i>90,0%</i>	<i>89,1%</i>	<i>90,7%</i>
Eastern Africa	139 885	199 153	254 570	316 117	462 583
Middle Africa	56 765	64 764	84 569	106 611	201 239
Northern Africa	65 974	45 900	67 114	91 608	115 695
Southern Africa	17 858	9 245	14 527	20 843	22 899
Western Africa	130 784	200 718	249 816	303 538	435 824
Increase 2010 - 2050					
Africa	2.65	3.35	4.32	5.41	7.98
Sub-Saharan Africa	2.62	3.60	4.58	5.67	8.53
Eastern Africa	2.64	3.76	4.81	5.97	8.74
Middle Africa	2.59	2.96	3.87	4.87	9.20
Northern Africa	2.81	1.96	2.86	3.91	4.93
Southern Africa	2.98	1.55	2.43	3.48	3.83
Western Africa	2.57	3.95	4.91	5.97	8.57
Percentage in total population aged 0-14 years					
Africa	100.0%	100.0%	100.0%	100.0%	100.0%
Sub-Saharan Africa	84.0%	91.2%	90.0%	89.1%	90.7%
Eastern Africa	34.0%	38.3%	38.0%	37.7%	37.4%
Middle Africa	13.8%	12.5%	12.6%	12.7%	16.3%
Northern Africa	16.0%	8.8%	10.0%	10.9%	9.3%
Southern Africa	4.3%	1.8%	2.2%	2.5%	1.8%
Western Africa	31.8%	38.6%	37.3%	36.2%	35.2%

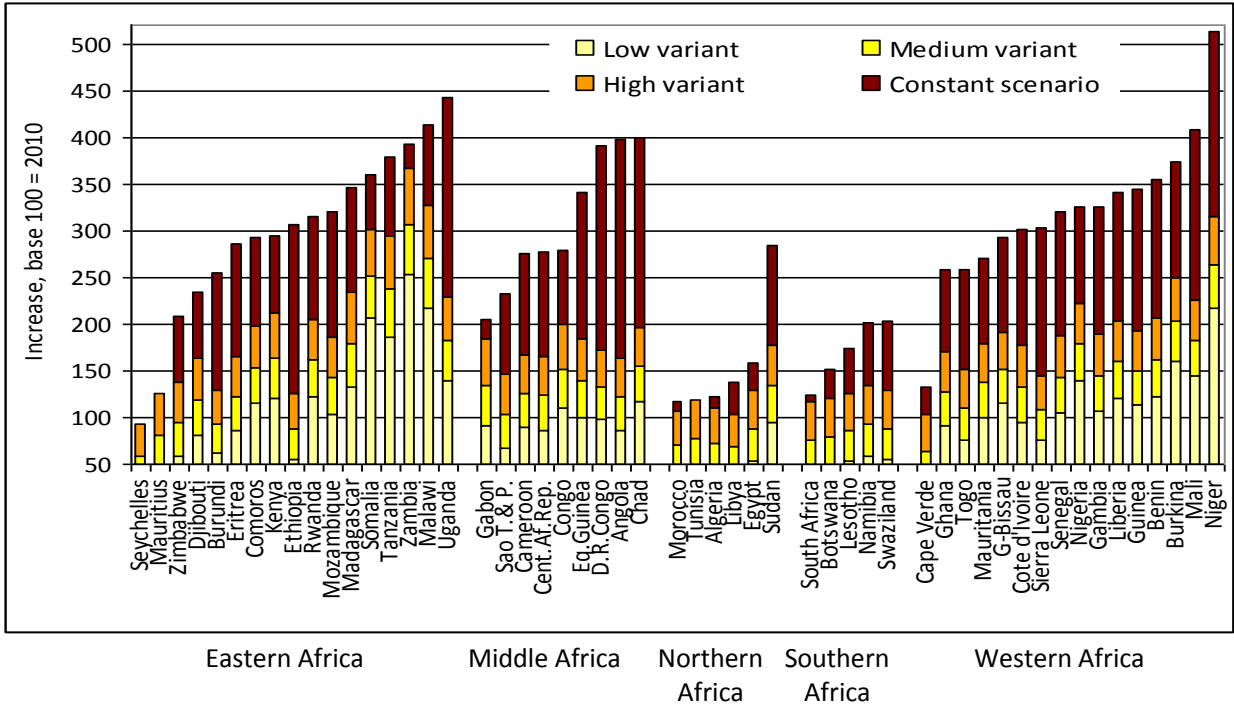
Source: United Nations 2011

The advantages of the Low fertility variant lie in the ability to improve the quality of children's health and education, as well as to invest more in young adult education, vocational training and job creation. Financing the expenses in the next 40 years for 520 million children in 2050 instead of 839 million children would result in a substantial "fiscal gain" that could be redeployed to improve the quality of health and education services. The adoption of policies

and programs aimed at slowing future population growth constitutes a crucial strategic choice, both at regional and national levels, which should not be overlooked by African leaders as has been the case in the past. It is all the more important to make serious efforts to reap this “fiscal gain” because the biggest challenge most countries of the region will need to address in the next decades is the dramatic increase in the number of youth and the corresponding jobs needed (see below).

At the country level, the size of this “fiscal gain” will depend on the future course of fertility in each country. The urgency to adopt policies and programs aimed at slowing down future population also varies from one country to another. Let us consider first the future numbers of children aged 0-4 years. Between 2010 and 2050, under the High fertility variant, the number of children aged 0-4 years will double (and even triple in some cases) in a third (18) of the countries and increase by 50% to 100% in another third (17) of the countries, primarily in Eastern, Middle and Western Africa (see Figure 15). By contrast, under the Medium fertility variant, the number of children aged 0-4 years will decrease, stabilize (as happened in many emerging market countries) or increase by less than 50% in two-thirds (34) of the countries. However, the number will more than double in a third (19) of the countries, mainly in countries with “slow and irregular or very slow and/or incipient” fertility transitions. Finally, with the Low fertility variant, the number of children aged 0-4 years will decrease in most countries (47 out of 53) or will stabilize or increase by less than 50%.

Figure 15: Projected increase of population aged 0-4 years between 2010 and 2050 (base 100 = 2010) of African countries according to fertility scenarios, by increasing order for each region

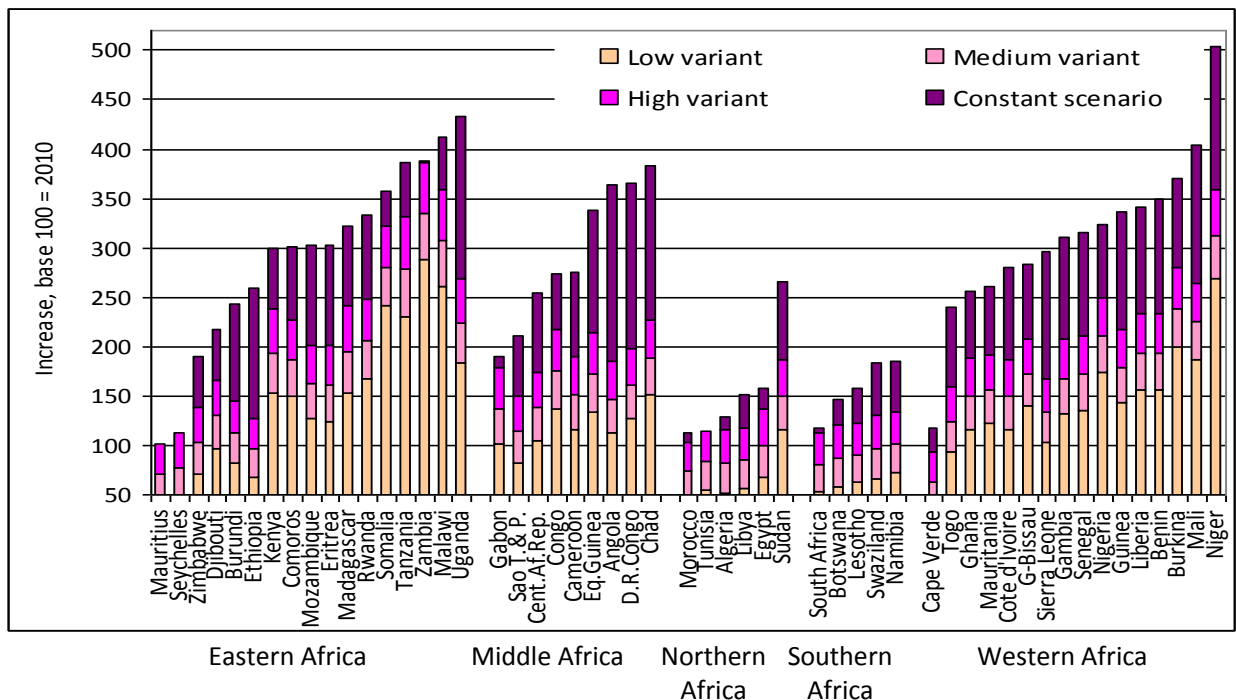


Source: United Nations 2011

Similar results are found with future numbers of children aged 5-14, but these results are somewhat amplified (see Figure 16). For example, under the High fertility variant, the number of children aged 5-14 will double or triple in almost half (24) of the countries. Similarly, under the Medium fertility variant, the number of children 5-14 will continue to increase by more than 50%, and it will more than double in more than a half (29) of the countries.

These results indicate clearly the urgency of launching programs and actions to slow down the growth of the population, especially in the countries with “slow and irregular or very slow and/or incipient” fertility transitions, which represent nearly 60% of the continent’s population and 70% of the population of sub-Saharan Africa. This is all the more important since these countries are generally those that still have very high maternal and child (under 5 years) mortality levels. Indeed, these countries are confronted today with the need to improve the coverage of maternal and health care and, at the same time, they have to expand their health and education services to respond to the needs of a continuously growing number of children and pregnant woman and maintain adequate infrastructure and equipment, as well as sufficiently trained personnel. As we have just seen, such programs and actions will have an impact in a relatively short term provided they are adopted right away.

Figure 16: Projected increase of population aged 5-14 years between 2010 and 2050 (base 100 = 2010) of African countries according to fertility scenarios, by increasing order for each region



Source: United Nations 2011

Projected Labor Force

The impact of programs and actions to slow down population growth will not be as rapid on the labor force. In fact, the number of youth entering the labor force will continue to grow rapidly because most future workers (aged 15-64 or 20-64, depending on the definition retained) are already born. The same is even more true for the elderly, since all the people who will be 65+ by 2050 are all already born. As a result, the dependency ratio (number of dependents aged less than 15 or 20 years and 65+ divided by the working age population aged 15-64 or 20-64) will decrease and be more favorable to economic growth only if the relative importance of the youth in the total population declines rapidly (as envisioned for instance in the Low fertility variant) (see below).

Today, in all African countries but three, the youth aged 15-29 represents a huge proportion, namely more than 40% of the adult population (above age 15), a phenomenon known as the “youth bulge.” It will take some time to reduce this proportion. By 2030, with the Low fertility variant only 15 countries (about a quarter) that are more advanced in their fertility transition will have a percentage below 40% of 15-29 years old. But by 2050, most countries (45 out of 53) can hope to get rid of their “youth bulge” if they follow the Low fertility variant. However, with the High fertility variant, half of the countries (26) will still have more than 40% of 15-29 year olds in their adult population.

As already mentioned, the dramatic increase in the number of youth and the corresponding jobs required will be the biggest challenge most countries of the region will need to confront during the next decades. Providing jobs to all the youth arriving on African labor markets will prove very difficult. The “African Economic Outlook 2012” report, which focuses on “Promoting Youth Employment,” states that the modern sector in Africa will not be able to absorb all the young workers. According to this report, only one quarter of young African men and 10% of young African women are presently able to get secure jobs in the formal or modern sector when they reach the age of 30 (African Development Bank 2012). Therefore, the vast majority of young Africans have, and will continue to have, precarious jobs in the informal sector. All youth development strategies will need to take into account these hard facts.

Crude estimates of new arrivals on the African labor market can be derived from the number of youth aged 15-24 years. They were estimated at 205 million in 2010. By 2030, they will reach 293 million under the Low fertility variant and 311 million under the High fertility variant. The difference between the two variants is minimal, but the increase in the next 20 years of about 100 million youth is important.

By 2050, the number of youth aged 15-24 years will reach 331 million under the Low fertility variant and 452 million under the High fertility variant (see Table 6). In this case, the difference is important (120 million) and this is largely the result of higher numbers of births between 2025 and 2034 (who will reach the age bracket 15 to 24 in 2050), resulting from the higher fertility of the High variant compared with the Low variant. If we assume that most of these youth will enter the labor market during the 10 years when they are 15-24 years old, and if we take a participation rate of 70%, this corresponds today to about 14 million jobs to be created every year for the entire continent. With the same assumptions, the annual jobs needed by 2030 will be around 21 to 22 million for both the Low and High variants. However, by 2050 the

annual jobs needed under the Low variant will be 23 million, a considerable figure, but which remains close to the 2030 figure (a consequence of the stabilization of the number of births starting in the 2030s with the Low variant). By contrast, under the High variant the number of jobs to be created annually will continue to increase and reach 32 million by 2050, more than double the number of jobs needed today. Clearly, adopting policies and actions now to accelerate the fertility transition translates into reduced pressure on the labor market in the future.

Table 6: Projected population aged 15-24 years by 2050 of Africa and African sub-regions according to the 2010 United Nations population projections

	2010	Low variant 2050	Medium variant 2050	High variant 2050	Constant variant 2050
Population aged 15-24 years (in thousands)					
Africa	205 063	331 121	391 063	452 085	550 878
Sub-Saharan Africa	163 808	296 708	346 286	396 774	488 432
<i>% Sub-Saharan Africa</i>	<i>79,9%</i>	<i>89,6%</i>	<i>88,5%</i>	<i>87,8%</i>	<i>88,7%</i>
Eastern Africa	66 554	122 960	143 982	165 373	202 808
Middle Africa	25 563	44 146	51 863	59 742	83 609
Northern Africa	41 255	34 413	44 777	55 311	62 446
Southern Africa	11 795	7 806	10 491	13 252	13 776
Western Africa	59 895	121 795	139 950	158 408	188 239
Increase 2010 - 2050					
Africa	1.00	1.61	1.91	2.20	2.69
Sub-Saharan Africa	1.00	1.81	2.11	2.42	2.98
Eastern Africa	1.00	1.85	2.16	2.48	3.05
Middle Africa	1.00	1.73	2.03	2.34	3.27
Northern Africa	1.00	0.83	1.09	1.34	1.51
Southern Africa	1.00	0.66	0.89	1.12	1.17
Western Africa	1.00	2.03	2.34	2.64	3.14
Percentage in total population aged 15-24 years					
Africa	100.0%	100.0%	100.0%	100.0%	100.0%
Sub-Saharan Africa	79.9%	89.6%	88.5%	87.8%	88.7%
Eastern Africa	32.5%	37.1%	36.8%	36.6%	36.8%
Middle Africa	12.5%	13.3%	13.3%	13.2%	15.2%
Northern Africa	20.1%	10.4%	11.5%	12.2%	11.3%
Southern Africa	5.8%	2.4%	2.7%	2.9%	2.5%
Western Africa	29.2%	36.8%	35.8%	35.0%	34.2%

Source: United Nations 2011

The biggest challenge in this respect will be in Eastern, Middle and Western Africa where the number of youth aged 15-24 years will double in the next 40 years under the Medium variant (and will triple, if we consider the Constant variant) with only a slightly less rapid increase under the Low variant and a slightly more rapid increase with the High variant (a consequence of the fact that youth aged 15-24 years by 2050 will be those born between 2025 and 2034, thus during a period when the fertility transition will still be far from completed in most countries). Conversely, in Northern and Southern Africa, where the fertility transition is already well advanced, the number of youth aged 15-24 years by 2050 will be more or less the same as in 2010 and may even decrease under the Low variant. These trends are likely to have consequences on international migration trends in both regions. In Northern Africa, traditionally affected by large outward movements, the pressure to leave the region may lessen. In Southern Africa and in particular in South Africa, the stabilization of the number of people aged 15-24 may become an incentive for further immigration from neighboring countries.

Parallel to these increasing or constant arrivals on the African labor market, the size of the working age population will continue to increase markedly between 2010 and 2050. The working age population is defined here as those aged 20 to 64, in order to take into account the need to provide for *secondary* education for the majority of the youth up to their 20th birthday. Given the rapid increases in the number of births observed since the 1950s, the generations aged 20 to 64, which will be part of the labor force by 2050 (born between 1985 and 2029), will be in any case much more numerous than the generations that are part of the 2010 labor force, born between 1945 and 1989.

In 2010, the working age population aged 20-64 was estimated at 466 million for the whole continent and at 353 million for sub-Saharan Africa. By 2030, it will reach 774 million for the whole continent (a 66% increase) and 616 million for Sub-Saharan Africa (a 74% increase). The figure is the same for all fertility variants (since those aged 20-64 years in 2030 were 0-44 years old in 2010). By 2050, the 20-64 years old will reach 1.097 billion with the Low fertility assumption and 1.249 billion with the High fertility, that is 152 million more. In both cases, the increases between 2010 and 2050 are huge: 2.4 times and 2.7 times the 2010 number, respectively (see Table 7).

These increases are higher for Eastern, Middle and Western African where the numbers of people aged 20-64 years will more or less triple between 2010 and 2050. In Northern and Southern Africa, increases will be much more modest, 70% and 30%, respectively, for the Medium variant.

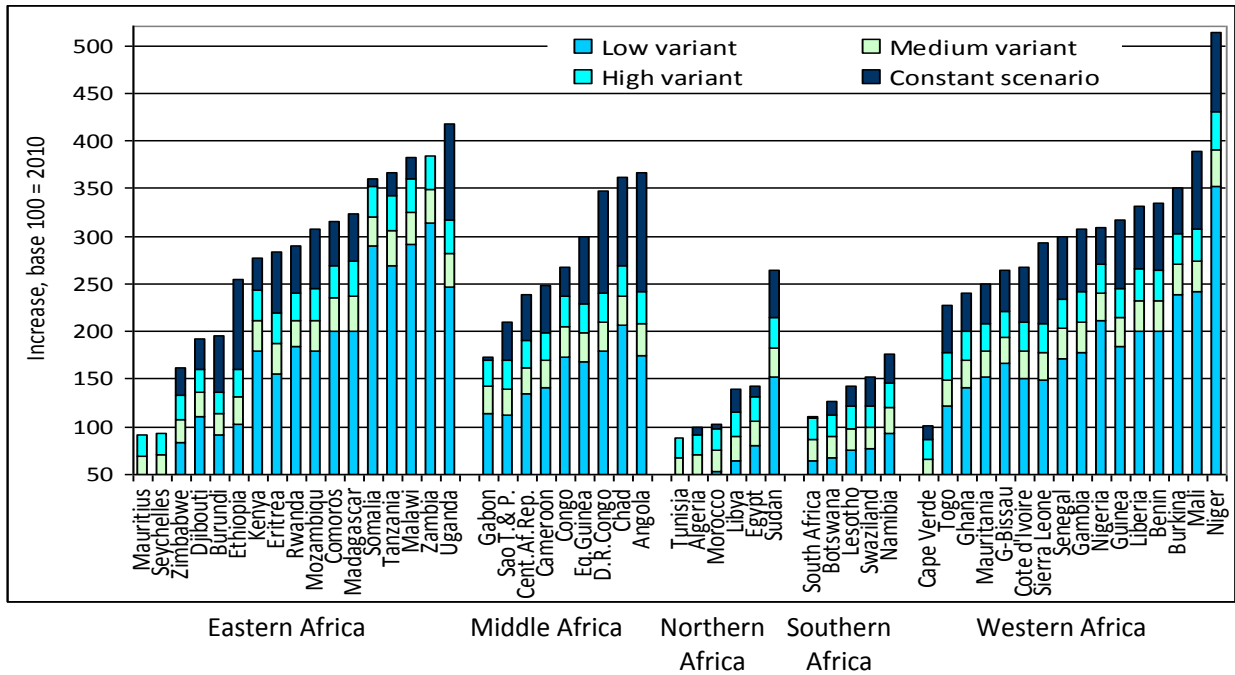
Table 7: Projected population aged 20-64 years by 2050 of Africa and African regions according to the 2010 United Nations population projections

	2010	Low variant 2050	Medium variant 2050	High variant 2050	Constant Variant 2050
Population aged 20-64 years (in thousands)					
Africa	465 511	1 097 068	1 172 957	1 249 000	1 315 553
Sub-Saharan Africa	353 227	925 003	985 284	1 045 699	1 108 301
<i>% Sub-Saharan Africa</i>	<i>75,9%</i>	<i>84,3%</i>	<i>84,0%</i>	<i>83,7%</i>	<i>84,2%</i>
Eastern Africa	137 558	381 917	407 399	432 930	459 961
Middle Africa	52 419	144 249	153 373	162 522	180 903
Northern Africa	112 284	172 064	187 673	203 301	207 252
Southern Africa	31 417	37 172	41 143	45 125	44 809
Western Africa	131 833	361 664	383 369	405 123	422 628
Increase 2010 - 2050					
Africa	1.00	2.36	2.52	2.68	2.83
Sub-Saharan Africa	1.00	2.62	2.79	2.96	3.14
Eastern Africa	1.00	2.78	2.96	3.15	3.34
Middle Africa	1.00	2.75	2.93	3.10	3.45
Northern Africa	1.00	1.53	1.67	1.81	1.85
Southern Africa	1.00	1.18	1.31	1.44	1.43
Western Africa	1.00	2.74	2.91	3.07	3.21
Percentage in total population aged 20-64 years					
Africa	100.0%	100.0%	100.0%	100.0%	100.0%
Sub-Saharan Africa	75.9%	84.3%	84.0%	83.7%	84.2%
Eastern Africa	29.5%	34.8%	34.7%	34.7%	35.0%
Middle Africa	11.3%	13.1%	13.1%	13.0%	13.8%
Northern Africa	24.1%	15.7%	16.0%	16.3%	15.8%
Southern Africa	6.7%	3.4%	3.5%	3.6%	3.4%
Western Africa	28.3%	33.0%	32.7%	32.4%	32.1%

Source: United Nations 2011

These overall figures are the result of the evolution at the country level. Increases in the numbers of youth aged 15 to 24 years between 2010 and 2050, estimated age of arrival on the labor market, can be seen in Figure 17. Most countries of Northern and Southern Africa and the island countries, which are more advanced in their fertility transition, will see the numbers of their 15-24 years old decrease with the Low fertility variant but remain more or less the same with the High fertility variant. In most other countries, the numbers of 15-24 years old will increase by about 50% with the Low fertility variant but double (and even triple in the case of Burkina Faso, Mali and Niger) with the High fertility variant.

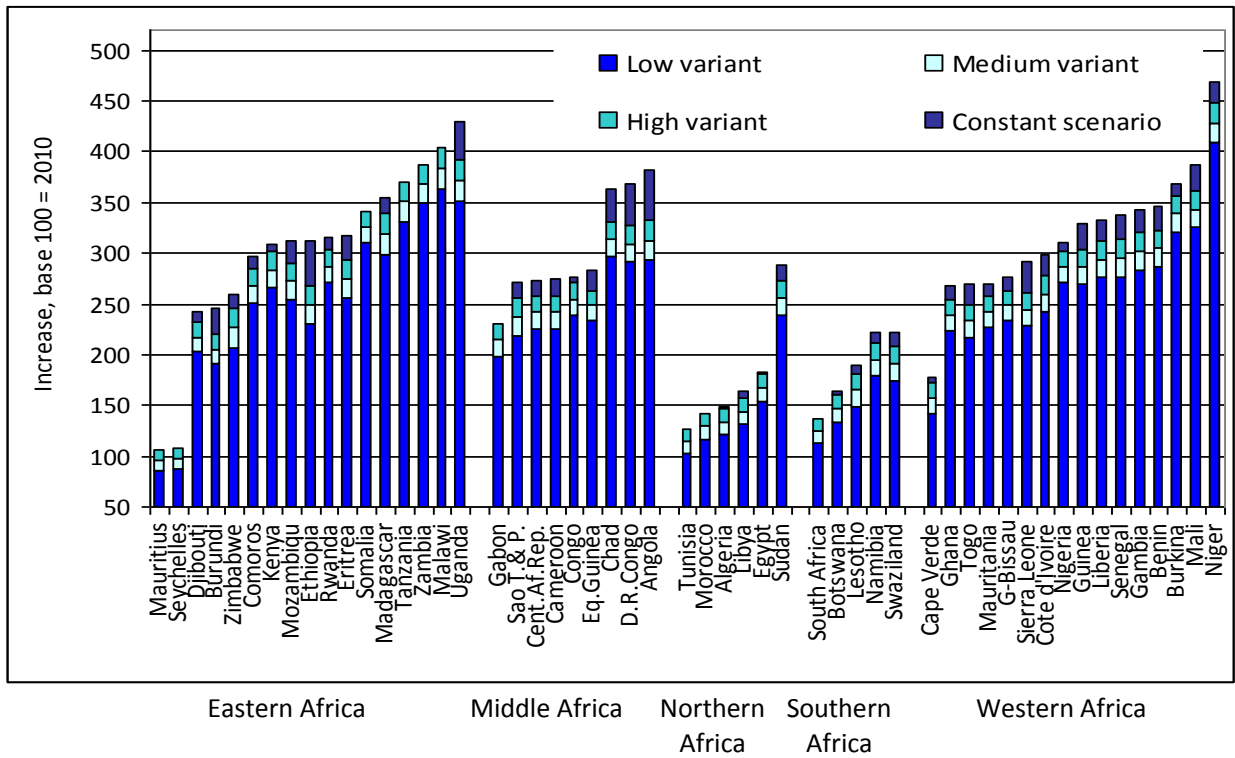
Figure 17: Projected increase of population aged 15-24 years between 2010 and 2050 (base 100 = 2010) of African countries according to fertility scenarios, by increasing order for each region



Source: United Nations 2011

Increases in the size of the working age population aged 20-64 in each country can be seen in Figure 18. As already mentioned, many of the people who will be between 20 and 65 years old by 2050 are already born. Therefore, the paths of the fertility decline between 2010 and 2050 will affect only marginally the size of the working age population in 2050. First, the labor force will remain more or less the same in four countries, i.e., Mauritius, Seychelles, Tunisia, and South Africa, whatever the fertility variant being considered. In the other countries of Northern and Southern Africa, it will increase roughly between 50% and 100%. However, in almost all the other Eastern, Middle and Western African countries, the working age population will multiply by 2 or 3. What kind of jobs will these people have? What kind of income will they get from their activities? It is not possible to give straightforward answers to these crucial questions, but it is clear that the challenges associated with these figures are as huge as the numbers themselves.

Figure 18: Projected increase of population aged 20-64 years between 2010 and 2050 (base 100 = 2010) of African countries according to fertility scenarios, by increasing order for each region



Source: United Nations 2011

People 65+ and Dependency Ratios

At the same time, almost all African countries will experience dramatic increases of their elderly populations. In 2010, the number of persons aged 65 years and more was estimated at 36 million. By 2030, this number will double and reach 70 million, and quadruple by 2050, reaching 144 million. These numbers are the same for all fertility assumptions because all the 65+ years old in 2050 were already born in 2010 (see Table 8). But their share in the total population will vary according to the fertility variant. By 2050, the 65+ years old will represent 7.5% of the continent population with the Low fertility variant but 5.8% with the High fertility variant, compared with 3.5% in 2010. However, the higher percentage, i.e., 7.5% in 2050, remains half of the equivalent percentage in Europe in 2010 (16.2%) and in all developed countries (15.9%). Therefore, Africa will definitely remain the youngest continent of the world in 2050. However, Northern Africa will have in 2050 a percentage of 65+ years old close to today's developed countries' percentages, from 12% with the High variant to 16% with the Low variant, followed by Southern Africa, from 8% with the High variant and 11% with the Low variant. But by 2050, Eastern, Middle and Western Africa, despite the rapid increases of their elderly, will still have very low percentages of 65+ years old in their population, ranging from 4% to 6%. At that time, developed countries will have between 23% and 29% of 65+ years old in their population, and this will also be the case for the countries of Eastern Asia.

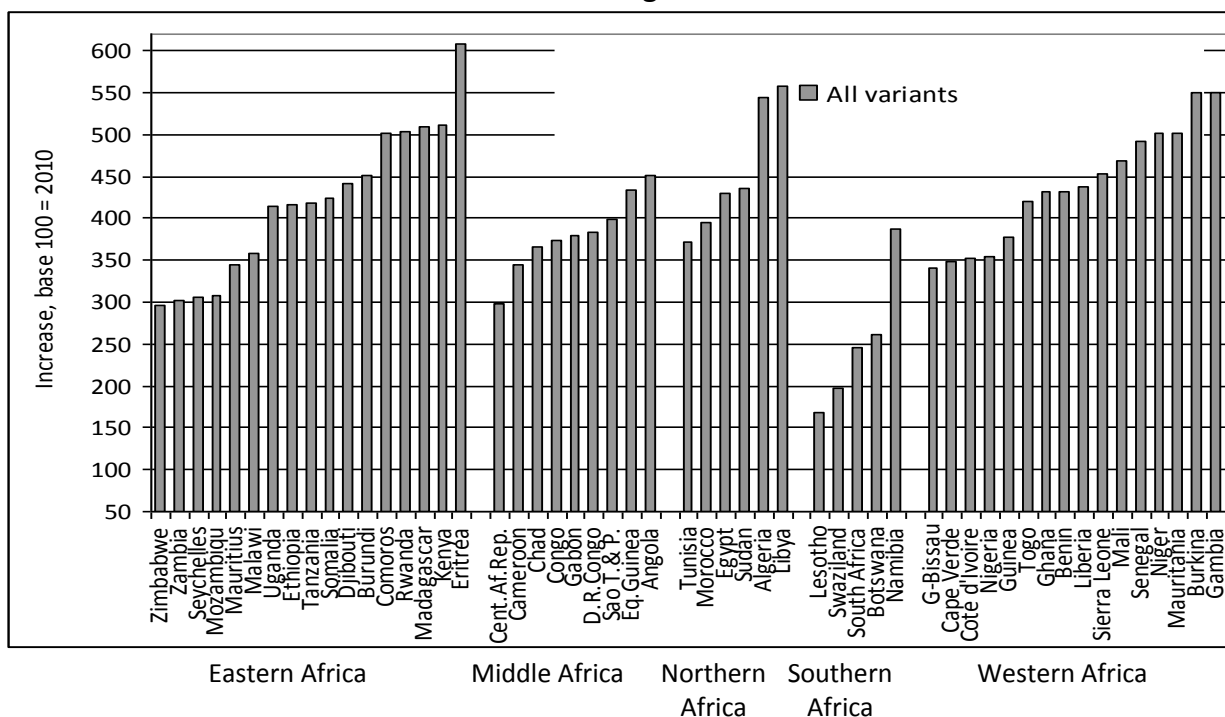
Table 8: Projected population aged 65 years and more by 2050 of Africa and African regions according to the 2010 United Nations population projections

	All variants	
	2010	2050
Population aged 65 years + (in thousands)		
Africa	35 883	143 782
Sub-Saharan Africa	25 863	99 422
<i>% Sub-Saharan Africa</i>	<i>72,1%</i>	<i>69,1%</i>
Eastern Africa	9 943	41 361
Middle Africa	3 657	13 858
Northern Africa	10 020	44 361
Southern Africa	2 621	6 484
Western Africa	9 642	37 718
Increase 2010 - 2050		
Africa	1.00	4.01
Sub-Saharan Africa	1.00	3.84
Eastern Africa	1.00	4.16
Middle Africa	1.00	3.79
Northern Africa	1.00	4.43
Southern Africa	1.00	2.47
Western Africa	1.00	3.91
Percentage in total population aged 65 years+		
Africa	100.0%	100.0%
Sub-Saharan Africa	72.1%	69.1%
Eastern Africa	27.7%	28.8%
Middle Africa	10.2%	9.6%
Northern Africa	27.9%	30.9%
Southern Africa	7.3%	4.5%
Western Africa	26.9%	26.2%

Source: United Nations 2011

All African countries will be affected by the rapid increase of their population aged 65+, as seen in Figure 19. Between 2010 and 2050, the lowest increases (between 50% and 250%) will be observed in 4 of the 5 Southern African countries. This is primarily the consequence of deaths due to HIV/AIDS in these countries, which are the most affected by the epidemic. In all other countries, the population aged 65+ will be multiplied by 3 to 5. These exceptional and unprecedented increases are the result of medical advances lengthening life expectancy at all ages, but it is also the consequence of the unrelenting increase of the African young population since the 1950s (Chesnais 1990), another legacy of the past neglect of the population factor (May 2012). This phenomenon will call for specific socioeconomic policies.

Figure 19: Projected increase of population aged 65 years and over between 2010 and 2050 (base 100 = 2010) of African countries according to fertility scenarios, by increasing order for each region



Source: United Nations 2011

The combined effect of the population dynamics just described will cause: a) varying proportions of youth in the total population depending on the fertility variant considered; b) important increases of the proportion of those aged 15-64 years or 20-64 years, i.e., the working age population; and c) modest increases in the proportion of the 65+ years old, despite the huge increase of their numbers. As a result, the dependency ratio (number of dependents aged less than 20 years old and more than 65, divided by the working age population aged 20-64 years) will decrease more or less, depending primarily on the rapidity of the fertility decline.

In 2010, the dependency ratio for Africa was 119 dependents for 100 working age persons aged 20-64, and it was 129 dependents for sub-Saharan Africa, the highest in the world (see Table 9). These ratios were more or less double those of Eastern Asia (56), Europe (60), and Northern America (66), and much higher than the ratio in Latin America (78). By 2030, the African ratio will decline slightly to 91 with the Low fertility variant but only marginally to 112 with the High fertility variant. By 2050, it will reach 76 with the Low fertility variant and 97 with the High fertility variant. These levels remain well above the 2010 ratio in Eastern Asia and the developed countries. However, by 2050, because of the projected aging of their population, the ratio of Eastern Asia will increase to between 76 and 87, and those of the developed countries will range from 86 to 98 (United Nations 2011). South Asia (including India, Bangladesh, Pakistan, Indonesia, Vietnam, etc.), which is already well advanced in its fertility transition (see Figure 5), may become the region with the lowest dependency ratios in the world in 2050 (i.e., between 55 with the Low fertility variant and 75 with the High fertility

variant). Therefore, the countries of South Asia might be in a more favorable situation than Africa with respect to their dependency ratios.

Table 9: Projected dependency ratios in percent (numbers of 0-19 years old and 65 years and more/20-64 years old) by 2050 of Africa and African sub-regions according to the 2010 United Nations population projections

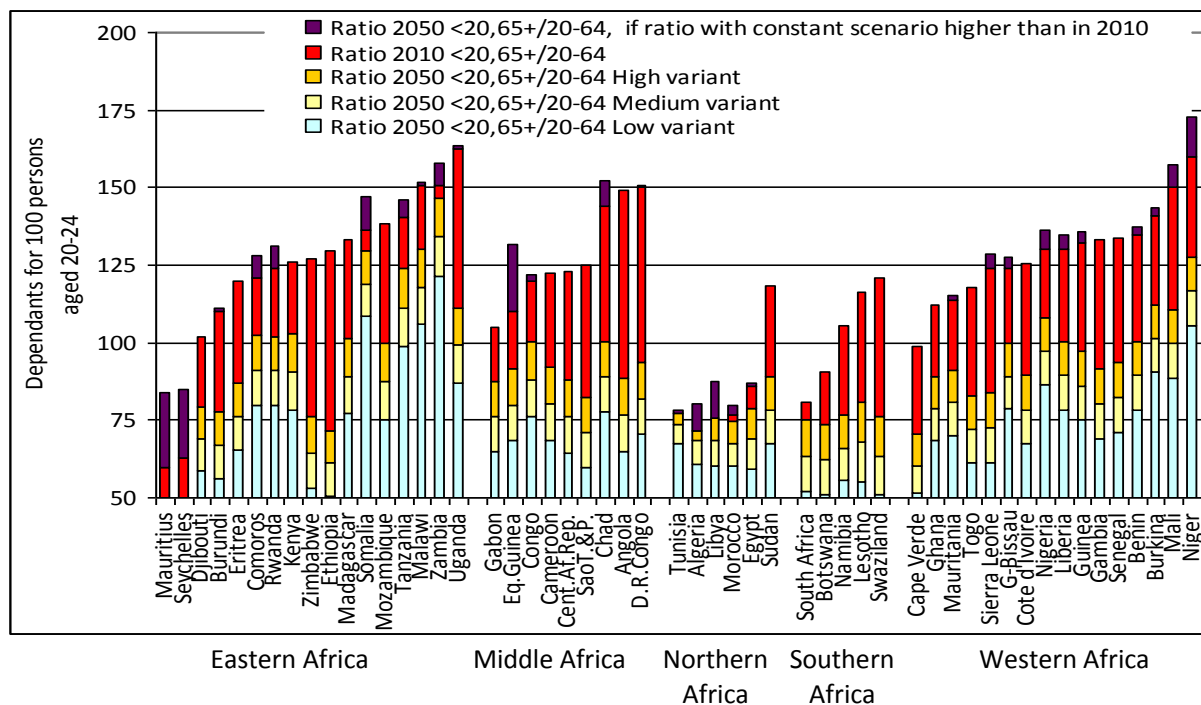
		Low variant 2050	Medium variant 2050	High variant 2050	Constant variant 2010
	2010				
Dependency ratio (>20 and 65+/20-64 years)					
Africa	119	76	87	97	128
Sub-Saharan Africa	129	78	89	100	133
Eastern Africa	135	79	91	103	133
Middle Africa	142	70	81	93	144
Northern Africa	86	62	71	81	93
Southern Africa	84	52	64	75	81
Western Africa	131	83	94	105	136

Source: United Nations 2011

By region, in 2010 Eastern, Middle and Western Africa had very high dependency ratios, above 130 dependents per 100 people of the working age population aged 20-64 years. By 2050, the dependency ratios will be at best around 80 under the Low variant and around 100 under the High variant, about double the present dependency ratios observed in Eastern Asia (56). By 2050 and considering only the dependency ratio, these three regions will obviously still be far from a favorable demographic age structure allowing them to capture the demographic dividend.

At the national level, the dependency ratios will decrease more or less rapidly depending on the initial levels of fertility and the importance of the fertility decreases projected (see Figure 20). In some cases, the Constant fertility variant even yields dependency ratios that are higher in 2050 than the 2010 ratios.

Figure 20: Number of dependents aged 0-19 years and 65+ years, for 100 persons aged 20-64 years for African countries by increasing order of 2010 value for each region in 2050



Source: United Nations 2011

With the Low fertility variant, only 14 countries out of 53 will have dependency ratios in 2050 comprised between 52 and 59, comparable to the present dependency ratios of Eastern Asia, and half (28) of the countries of the continent will have dependency ratios in 2050 between 60 and 78. However, with the High fertility variant, the dependency ratio will be much higher: 9 countries will have dependency ratios between 70 and less than 80 and a third (19) of the countries will continue to have dependency ratios above 100, which means that they will still be in an unfavorable situation to save, invest and create jobs.

This underlines again the urgency for governments and policymakers to seriously take into account the population dimension into their development planning, and, for the countries still far from completing their fertility transition, to accelerate their fertility decline.

Conclusion: Achieving the Demographic Vision for 2050

Fulfilling a vision of prosperity and inclusive growth for African by 2050 is intrinsically linked to the attainment of a modern demographic regime. Reaching such a regime in the next 40 years will imply that most African countries continue their efforts to reduce mortality levels, whilst implementing public policies to initiate, accelerate or complete their fertility decline, depending on the specific situation of each country. This will be a daunting challenge.

Indeed, if the countries were to follow the 2010 United Nations Medium fertility variant, fertility levels in 2045-2050 would remain above 3 children per woman in 15 countries (out of 53) but in only seven countries if they were to follow the Low fertility variant and in 30 countries if they were to follow the High fertility variant. A modern demographic regime corresponds to fertility levels between two or three children per woman and contraceptive prevalence rates (CPRs) between 50% and 65% (against 10% to 30% in about two countries out of three today).

As mentioned already, the three 2010 UN variants' fertility declines appear rather optimistic for many countries given the recent fertility trends observed (see Figures 4 and 6) and the persistent low levels of contraceptive use associated with them (see Figures 7 and 8). This is particularly true for the 40 countries (41 with South Sudan) that are still far from completing their fertility transition and represent nearly 60% of the continent's population and 70% of the population of sub-Saharan Africa in 2010. Based on this evidence, for many countries, fertility might well decline more slowly than anticipated under the 2010 UN Medium variant and for several countries (e.g., in the Sahel) more slowly than anticipated under the 2010 UN High variant. This point is important because if fertility declines are slower than those projected under the Medium or even the High variants, the dependency ratios will remain high and prevent many countries from achieving the demographic conditions needed to capture a demographic dividend.

In this context and based on the analysis of past and present demographic trends and future population trends and characteristics as envisioned using the 2010 and 2011 United Nations World Population and Urbanization Prospects, our demographic vision for Africa in 2050 can be summarized, as follows:

- *For all countries, there is a need to foster the decline of infant and child mortality rates and increase survival prospects for adults to entice people to prepare for their future, with an overall increase of life expectancies at all ages.*
- *For the countries still far from achieving their fertility transition, there is a need to trigger a much more rapid decline in fertility levels (total fertility rates) along with a much more rapid increase in the contraceptive prevalence rates (CPRs) (namely, realizing the contraceptive revolution). The ultimate goal will be to reach by 2050 total fertility rates of around 3 children per woman (or less) in all African countries.*
- *For all countries, there is a need to attain or maintain favorable dependency ratios as the result of the demographic transition, in particular for the youth below age 20, as compared to the working age population (age group 20 to 64). For those few countries that have completed or are close to completing their fertility transition, it is important that fertility remain around replacement levels, to avoid increases in the dependency ratio resulting from the expected increases in numbers of people aged 65 years and over.*
- In order to accelerate the mortality and fertility transition and to achieve this 2050 demographic vision, sound policies and programs will be necessary. In this respect, the role of policies and leadership commitment is crucial (May 2005, 2012). In particular,

two major policy shifts that should translate into vigorous, broad-based and far-reaching interventions are urgently needed:

- First, one will need a much stronger commitment and engagement on population and family planning issues on the part of public authorities, civil society organizations and international donors alike.¹² This stronger commitment must be based on the recognition not only of the benefits of family planning for improving maternal and health, but also for reasons of better economic and social planning. This commitment must be based also on the unambiguous recognition of everyone's rights of access to sexual and reproductive health services. For most countries, this implies more important and especially more regular funding flows for population and family planning programs over the next decades. For the 40 countries which are today still far from completing their fertility transition, and in particular in the 25 countries with "slow and irregular transition" or "very slow and/or incipient transition," this requires setting programmatic objectives for family planning programs in the form of rapid increases of contraceptive prevalence rates (CPRs). Such increases should be of at least 1.5 percentage points per year, as it has been observed in today's emerging market countries (see Figure 7). This will enable SSA countries to realize contraceptive revolution, since they must eventually reach CPRs of at least 60% in 2050 to reach "modern" and lower levels of fertility.
- Second, one will need also a much stronger drive toward the empowerment of women. This implies that a number of countries do enact legislative changes such as *inter alia* rising the legal age at marriage, adopting inheritance laws and/or practices that do not disadvantage women, adopting new *Family Codes* to guarantee equal rights and duties for males and females, and removing the husband's and/or parents' consent to allow women and young girls to have easy access to family planning services. This will require also the promotion of reproductive rights, while at the same time making sure that women and couples can exert their reproductive choices freely and without coercion. Furthermore, social, cultural and even religious norms will also have to evolve for a rapid fertility decline to happen.

Broad-based and far-reaching interventions are urgently needed to accelerate the demographic transition, which will be initiated by rapid declines in fertility that in turn will bring about more favorable dependency ratios. The improvement of the dependency ratios (see Figure 20) will help strengthen human capital (i.e., education and health), provided sound policies and investments are put into place at the same time (see Beaujeu et al. 2011). This is one of the absolutely necessary conditions, along with adequate macroeconomic policies that are needed to fulfill a vision of prosperity and inclusive growth for Africa by 2050.

¹² After almost 20 years of neglect of family planning internationally, a first step in the right direction was the July 2012 London Conference on Family Planning convened by the Department for International Development (DFID) and the Bill & Melinda Gates Foundation.

Annex 1: Demographic Indicators Estimated by the United Nations for 2010 and 2005-2010 and Most Recent Fertility Estimates from 2009-2012 Surveys, by Sub-Region

	Population 1000s 2010	TFR UN Estimates 2005-10	Recent surveys results	Date of survey and period of reference	Difference with UN estimates	E(0) UN Estimates 2005-10	% urban Population 2010	Number of Cities in 2010 over 750,000
Eastern Africa								
Burundi	8 383	4.7	6.40	2010 DHS (3 years)	1.7	48.8	10.6	
Comoros	735	5.1				59.7	28.0	
Djibouti	889	4.0				56.6	77.0	
Eritrea	5 254	4.7				60.0	20.9	
Ethiopia	82 950	4.6	4.80	2011 DHS (3 years)	0.2	57.2	16.8	1
Kenya	40 513	4.8				55.0	23.6	2
Madagascar	20 714	4.8				65.8	31.9	1
Malawi	14 901	6.0	5.70	2010 DHS (3 years)	-0.3	51.6	15.5	1
Mauritius	1 299	1.7				72.8	41.8	
Mozambique	23 391	5.1	5.90	2011 DHS (3 years)	0.8	48.8	31.0	2
Rwanda	10 624	5.4	4.60	2010 DHS (3 years)	-0.8	53.9	18.8	1
Seychelles	87	2.0				73.0	53.2	
Somalia	9 331	6.4				50.2	37.3	1
Uganda	33 425	6.4	6.20	2011 DHS (3 years)	-0.2	52.2	15.2	1
Tanzania	44 841	5.6	5.40	2010 DHS (3 years)	-0.2	55.4	26,3	1
Zambia	13 089	6.2				46.9	38.7	1
Zimbabwe	12 571	3.5	4.10	2010-11 DHS (3 years)	0.6	46.6	38.1	1
Middle Africa								
Angola	19 082	5.8				49.6	58.4	2
Cameroon	19 599	4.7	5.10	2011 DHS (3 years)	0.4	50.0	51.5	2
Cen. Af. Rep.	4 401	4.8				45.9	38.8	
Chad	11 227	6.2	6.90	MICS 2010 (5 years)	0.7	48.5	21.7	1

Congo	4 043	4.6	5.10	2011-12 DHS (3 years)	0.5	56.0	63.2	2
DR Congo	65 966	6.1	6.30	MICS 2010 (12months)	0.2	47.4	33.7	5
Eq. Guinea	700	5.4				50.1	39.3	
Gabon	1 505	3.4	4.10	2012 DHS (3 years)	0.7	61.3	85.8	
Sao T.& P.	165	3.9	4.90	2008-09 DHS (3 years)	1.0	63.8	62.0	
Northern Africa								
Algeria	35 468	2.4				72.3	72.0	2
Egypt	81 121	2.9				72.3	43.4	2
Libya	6 355	2.7				74.0	77.6	1
Morocco	31 951	2.4				71.2	56.7	6
Sudan	43 552	4.6	5.60	MICS 2010 (3 years)	1.0	60.3	33.1	1
Tunisia	10 481	2.0				73.9	66.1	1
Southern Africa								
Botswana	2 007	2.9				53.3	61.0	
Lesotho	2 171	3.4	3.30	2009 DHS (3 years)	-0.1	46.0	26.8	
Namibia	2 283	3.4				61.1	37.8	
South Africa	50 133	2.6				51.2	61.5	7
Swaziland	1 186	3.6	3.70	MICS 2010 (3 years)	0.1	47.4	21.3	
Western Africa								
Benin	8 850	5.5	4.90	DHS 2011-12 (3 years)	-0.6	54.6	44.3	1
Burkina	16 469	5.9	6.00	MICS 2010 (3 years)	0.1	53.9	25.7	1
Cape Verde	496	2.6				73.5	61.8	
Côte d'Ivoire	19 738	4.6	5.00	DHS 2011-12 (3 years)	0.4	53.0	50.6	2
Gambia	1 728	5.1				57.3	56.7	
Ghana	24 392	4.3				62.7	51.2	2
Guinea	9 982	5.5	5.10	DHS 2012 (3 years)	-0.4	52.4	35.0	1
G-Bissau	1 515	5.3	5.10	MICS 2010 (2 years)	-0.2	46.8	43.2	
Liberia	3 994	5.4	5.90	2009 MIS (3 years)	0.5	54.4	47.8	1
Mali	15 370	6.5				50.0	34.3	1
Mauritania	3 460	4.7				57.5	41.2	1

Niger	15 512	7.2	7.60	DHS 2012 (3 years)	0.4	53.1	17.6	1
Nigeria	158 423	5.6	5.70	MICS 2011(2 years)	0.1	50.3	49.0	14
Senegal	12 434	5.0	5.00	DHS 2010-11 (3 years)	-0.03	58.2	42.3	1
Sierra Leone	5 868	5.2	4.30	MICS 2010 (12months)	-0.9	46.3	38.9	1
Togo	6 028	4.3	4.80	MICS 2010 (12months)	0.5	55.7	37.5	1
<hr/>								
Number of								
countries	53		28		28		Countries	36
							Number of cities	73

Sources: United Nations 2011, and DHS and MICS 4 surveys results (final or preliminary results)

Annex 2: Methodological Notes

First, this *Africa 2050: Background Paper on African Demography* offers a demographic analysis of all African countries between 2010 and 2050, using primarily the United Nations 2010 World Population Prospects and 2011 World Urbanization Prospects, as well as the most recent data from DHS and MICS surveys not available in 2010. The analysis also refers to the framework of the “Convergence Model,” which was adopted for the entire Africa 2050 study.

Second, this paper covers the 53 sovereign countries of Africa. South Sudan, which became independent in July 2011, is not included in this paper because of the lack of reliable data. The population of South Sudan was estimated by the World Bank at 10.3 million people in mid-2011; this estimate has to be confirmed by a new population census, which should be conducted shortly. Other demographic indicators for South Sudan (e.g., expectancy of life at birth, total fertility rate, contraceptive prevalence rate, etc.) were not available at the time of this report writing.

Third, this paper uses the United Nations classification of countries where South Sudan is listed in Eastern Africa, and Sudan, listed in Northern Africa (see also Population Reference Bureau 2012). This UN classification lists the countries, as follows:

Northern African: Algeria, Egypt, Libya, Morocco, Sudan & Tunisia

Western Africa: Benin, Burkina Faso, Cape Verde, Côte d’Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone &Togo

Eastern Africa: Burundi, Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Malawi, Mauritius, Mozambique, Rwanda, Seychelles, Somalia, Uganda, United Republic of Tanzania, Zambia & Zimbabwe (plus South Sudan, not included in this paper)

Middle (or Central) Africa: Angola, Cameroon, Central African Republic, Chad, Congo Republic, Democratic Republic of the Congo (DRC), Equatorial Guinea, Gabon & Sao Tome and Principe

Southern Africa: Botswana, Lesotho, Namibia, South Africa & Swaziland

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