



## DEMOGRAPHY OF THE WORLD'S REGIONS: SITUATIONS AND TRENDS

### Foreword

From its creation in 1946, *Population* has endeavoured to inform readers on the demographic situation in France. The journal published its first article on the demographic context in 1970 and would soon go on to publish a similar article every year. *Population* continues to fulfil this mission, but it has also expanded its geographical purview. Since 2004, the journal has featured articles that summarize population trends around the world. Responsibility for this project has been entrusted to Dominique Tabutin, Emeritus Professor at Université Catholique de Louvain and a member of the journal's editorial board.

These articles aim to provide readers with a broad panorama of the demographic situation in major world regions, accompanied by reliable and updated series of statistics. By drawing on geographical, socio-economic, and epidemiological data, the articles review the specific characteristics of populations over long time scales, addressing trends in population sizes and structures, fertility, nuptiality, migration, mortality, and demographic projections, as well as topics more specific to the region in question, such as urbanization, ageing, and HIV.

Reader interest is clear, as these articles are among *Population's* most downloaded contributions. Through their content and style, they are intended both for an informed readership in demography together with teachers, students, journalists, and any other individuals interested in contemporary demographic issues.

After completing an 'around-the-world' journey, with contributions from numerous authors (writing on sub-Saharan Africa in 2004, the Arab world and the Middle East in 2005, Latin America and the Caribbean in 2006, South Asia in 2008, East and South-East Asia in 2009, Oceania in 2010, Europe in 2011, and Canada and the United States in 2012), it is time to shift our focus back to the world region with the highest population growth: sub-Saharan Africa. Dominique Tabutin and Bruno Schoumaker, the authors of the initial articles, have thus resumed their work, reviewing the most recent trends observed since the start of the 21st century in a region home to over a billion people.

We hope you enjoy this latest instalment.

Géraldine Duthé, Olivia Samuel, and Anne Solaz  
*Editors-in-chief*





Dominique TABUTIN\* and Bruno SCHOUMAKER\*

## The Demography of Sub-Saharan Africa in the 21st Century: Transformations Since 2000, Outlook to 2050

From the 1950s to the early 1980s, demographers considered sub-Saharan Africa (51 countries<sup>(1)</sup> and a population of 1.1 billion in 2020) to be a relatively homogeneous region, impervious to the sociodemographic changes under way in much of the developing world. The continent was said to be lagging behind, its situation exceptional, characterized by early and universal marriage, very high fertility, high mortality despite the progress achieved since the 1960s, and rapid population growth. Changes in the population dynamics of the region accelerated in the 1980s and 1990s and became more diverse across countries and subregions, with often substantial reductions in mortality, some initial signs of fertility decline, but no decrease in the pace of population growth. Those decades were also marked by the AIDS epidemic, economic crises and their attendant structural adjustment programmes, chronic poverty, and ongoing political conflict. Africa had nonetheless begun its demographic transition.<sup>(2)</sup> But the speed of change was variable, and progress was fragile and uncertain. In some cases (in Southern Africa, for example), the situation even reversed (Tabutin and Schoumaker, 2004; Tabutin and Masquelier, 2014). The changes—probably irreversible—now well under way in most countries of the region were still a distant prospect in the late 1990s.

(1) Fifty-one countries according to the most recent classification of the United Nations Population Division (United Nations, 2019a), including the two French overseas *départements* (Mayotte and Réunion) and the British island of Saint Helena. Sudan is included in North Africa, and South Sudan, created in 2011, in Eastern Africa.

(2) In this article, when we refer to Africa or the African population, we are referring to sub-Saharan Africa.

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## Objectives

What is the situation 20–30 years later, in 2020? How has the demography of sub-Saharan Africa evolved in the early 21st century? What are the key components of change, or of resistance to change, in societies that are evolving and opening up to the world and where the populations are increasingly educated and urban? Is Africa catching up with other world regions and if so, how and in what areas? Are the observed changes in population dynamics or their components leading to growing diversity across the continent's countries and subregions? And within each country, are inequalities increasing between social groups and between urban and rural populations? What are the prospects for sub-Saharan Africa? Which challenges lie ahead? Will it reap the benefits of a demographic dividend, linked to fertility decline and changing age structures (fewer children, more working-age people), that is conducive to economic growth under this paradigm (Guengant, 2011)?

We aim to present and summarize the major demographic changes under way in the region, subregions, and countries of sub-Saharan Africa over a period of almost 20 years, from the late 1990s to the late 2010s. This article follows on from our overview of the period 1950–2000 (Tabutin and Schoumaker, 2004). To ensure comparability, this update is structured similarly, although certain sections have been removed (early history, information systems, educational inequality), and others have been shortened. It looks more closely at how social disparities have evolved in the different countries and at future prospects and challenges.

After briefly comparing the socio-economic context of sub-Saharan Africa in the early 21st century with that of other world regions, the following topics will be addressed in succession:

- Population size and growth
- Major transition models
- Nuptiality (age at marriage, singlehood, union dissolution, and polygamy)
- Fertility and its intermediate variables, including contraception
- Mortality (overall, infant and child, maternal, causes of death and AIDS in particular)
- Internal migration and urbanization
- International migration

We conclude with an outline of prospects up to 2050 and of the challenges concerning education, health, and employment, followed by a general summary including research questions which, in our view, deserve priority attention.

## Approach and indicators

We adopt a primarily descriptive approach, analysing recent levels and trends in the region, subregions, and countries of sub-Saharan Africa. Our chronicle

focuses on spatial disparities and social inequalities (by sex, women's education, urban/rural place of residence, and household living standard) across 10 countries and provides some explanations of the changes observed. We use classic demographic indicators: crude birth rate, crude death rate, rate of natural increase, median age at first union, total fertility rate (TFR), age-specific fertility rate, contraceptive prevalence, life expectancy at birth, probability of dying at various ages, maternal mortality rate, percentage urban, net migration, etc. The statistical appendix (eight tables) shows the evolution of some of these indicators (from 1960 or 1980) for 47 countries and the four subregions of sub-Saharan Africa, along with the recent characteristics and determinants of fertility, marriage, and child mortality in the 39 countries where the most recent Demographic and Health Surveys (DHS) were conducted in the 2010s.

### Information sources

This overview draws upon results published in the scientific literature on Africa (2000–2019), including reports by United Nations bodies (United Nations Population Division [UNPD], WHO, and UNICEF) and in specialized articles from a diverse range of journals.<sup>(3)</sup> It is also based on specific analyses of datasets supplied by international organizations (United Nations Development Programme, WHO, UNICEF, World Bank, etc.), by the DHS survey programme of the United States Agency for International Development (USAID), and by UNICEF's Multiple Indicator Cluster Surveys (MICS). Numerous national surveys of this type have been conducted in the region since the 1980s. From 2000 to 2018, almost 90 MICS surveys were held in 32 African countries and more than 90 DHS surveys in 42 countries. For many of them, these surveys are the main sources of data on the characteristics of fertility, mortality, and maternal and child health, as well as their evolution over time. Sub-Saharan Africa has been especially well covered by these international programmes over the last 40 years. Moreover, practically all countries have conducted at least one census since 2000 to measure population size, internal migration, and urbanization, and to estimate mortality and fertility as directly as possible. However, despite recent efforts, civil registration is still incomplete at the national level,<sup>(4)</sup> rarely processed and hence unusable in most countries except for South Africa, Mauritius, and São Tomé and Príncipe.

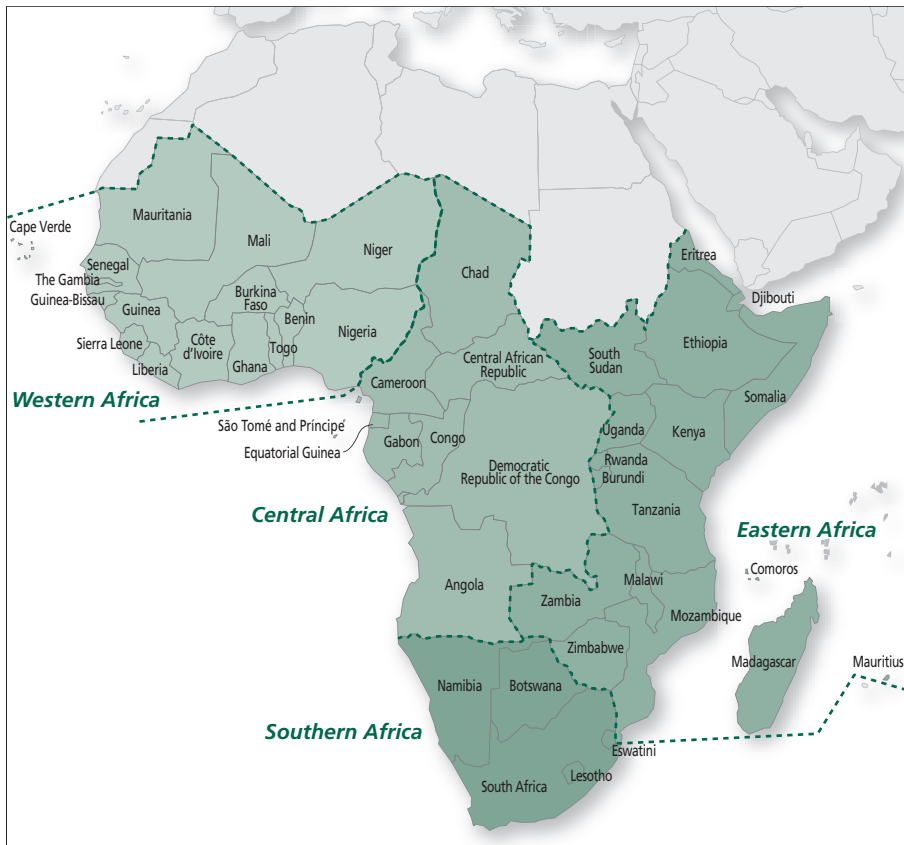
### Geography

The map below shows the geographical location of the 51 countries of sub-Saharan Africa (under the UN definition) and their standard grouping into four subregions: Western Africa (17 countries), Central Africa

(3) For example, *Population and Development Review*, *African Population Studies*, *Population*, *Cahiers québécois de démographie*, *Demography*, *Population Studies*, *PLOS One*, and *International Migration Review*.

(4) National estimates of birth and death registration coverage circa 2017 are available on the website of the United Nations Statistics Division, <https://unstats.un.org/unsd/demographic-social/crvs/>

Map. Sub-Saharan Africa



(nine countries), Eastern Africa (20 countries), and Southern Africa (five countries). Forty-seven are included in our study.<sup>(5)</sup>

For the specific analysis of spatial (urban/rural residence), socio-economic (women's education, household living standards), and gender dimensions of inequality, we selected 10 countries that are representative of the social, economic, and demographic diversity of sub-Saharan societies: Nigeria (by far the most populous country, currently starting its fertility transition), Rwanda (a small country in rapid transition for the last 15 years), Ghana and Kenya (ongoing transition over the last 35 years), Zimbabwe (disrupted by AIDS over the last 25 years), Burkina Faso and Niger (little change so far), Cameroon and Tanzania (slow but steady fertility transition since 1995), and South Africa (most advanced transition in all respects, despite the high prevalence of AIDS). Table 1 shows how the demographic indicators (fertility, life expectancy, and

(5) As in 2004, we have excluded two very small countries, the Seychelles (453 km<sup>2</sup>, population 97,000) and Saint Helena (122 km<sup>2</sup>, population 4,500), and the two French overseas departments, Mayotte and Réunion, which are not independent countries.

**Table 1. Sociodemographic and economic characteristics of sub-Saharan Africa, other major world regions, and 10 selected countries, 2000–2017**

Region/country	Population (millions)		Total fertility rate (children per woman)		Life expectancy at birth (years)		Mean annual rate of natural increase (%)		Human Development Index(a)		Gross national income per capita(b)		Adult illiteracy rate (%) (c)		Extreme poverty rate (%) (d)	
	2000	2017	1995 2000	2015 2020	1995 2000	2015 2020	1995 2000	2015 2020	2000	2015	2000	2017	2000	2017	1990	2015
Sub-Saharan Africa	665	1,050	5.9	4.8	50	61	2.7	2.7	0.42	0.54	1,869	3,755	43	35	55	41
North Africa and Middle East	315	441	3.5	2.8	69	74	2.0	1.8	0.61	0.70	7,264	13,630	33	24	6	4
Latin America and Caribbean	521	635	2.8	2.0	71	75	1.8	1.0	0.69	0.76	8,375	15,247	12	7	15	4
South Asia	1,391	1,793	3.7	2.4	62	69	2.0	1.3	0.50	0.64	2,118	6,550	42	28	47	16
Eastern Asia and Pacific	2,014	2,314	1.9	1.8	70	76	1.1	0.7	0.60	0.74	3,246	14,838	9	4	61	2
OECD countries	1,197	1,345	1.8	1.7	76	80	0.5	0.3	0.84	0.89	25,308	44,467	—	—	—	—
Burkina Faso	11.6	19.2	6.7	5.2	50	61	3.1	3.0	0.29	0.43	850	1,810	78	59	—	44
Ghana	19.3	29.1	5.0	3.9	57	64	2.6	2.2	0.48	0.59	1,710	4,340	42	21	—	13
Niger	11.3	21.6	7.7	7.0	48	62	3.6	3.8	0.25	0.37	600	990	86	69	—	44
Nigeria	122.3	190.8	6.2	5.4	46	54	2.5	2.6	0.44	0.53	2,230	5,710	45	38	—	54
Cameroon	15.5	24.6	5.8	4.6	51	59	2.7	2.6	0.43	0.56	1,920	3,580	32	23	—	24
Kenya	32.0	50.2	5.3	3.5	52	66	2.8	2.3	0.45	0.57	1,700	3,230	18	18	—	37
Rwanda	7.9	12.0	5.9	4.1	45	68	2.5	2.7	0.33	0.54	630	2,040	35	27	—	55
Tanzania	33.5	54.7	5.8	4.9	50	65	2.7	3.0	0.40	0.53	1,230	3,020	31	22	—	49
Zimbabwe	11.9	14.2	3.9	3.6	47	61	1.7	2.3	0.44	0.55	2,220	2,580	—	11	—	21
South Africa	45.0	57.0	2.9	2.4	59	64	1.3	1.1	0.63	0.70	7,540	13,060	—	6	—	19
World	6,143	7,548	2.8	2.5	66	72	1.3	1.1	0.64	0.73	7,941	17,099	19	14	36	10

(a) Composite measure of human development, including life expectancy, adult literacy rates, school enrolment ratios, and per capita GDP. The closer it is to 1, the better the situation. The estimation dates refer to the years 2000 and 2017, except for Nigeria (2003 and 2017). In the UNDP classification, sub-Saharan Africa does not include Somalia, Sudan, and Djibouti, and the Arab states region is used for North Africa and the Middle East, which does not include Israel, Malta, and Iran. The UNDP includes Iran in South Asia.

(b) Per capita gross national income (USD) in terms of purchasing power parity (PPP) calculated by the World Bank.

(c) Percentage of illiterates among the population aged 15 and above. The estimation dates vary by country: Cameroon, Ghana, Kenya, and Rwanda (2000 and 2018); Niger (2001 and 2012); Tanzania (2002 and 2015); Nigeria and Burkina Faso (2003 and 2018); Zimbabwe (2014); and South Africa (2015).

(d) Percentage of the population living with less than 1.90 USD per day. The estimation dates vary by country: Nigeria (2009); Tanzania and Zimbabwe (2011); South Africa, Burkina Faso, Cameroon, and Niger (2014); Kenya (2015); and Ghana and Rwanda (2016).

**Notes:** The 10 sub-Saharan African countries are grouped as regions (Western, Central, Eastern, and Southern) and in alphabetical order within each region. The figures are for the most recent years for which data are available in the UNDP, UNESCO, or World Bank databases, most of which were updated in 2019. Dashes indicate lack of data. In this table, the regions are defined based on World Bank criteria, for availability of socio-economic data, except for the HDI and the extreme poverty rate, which rely on UNDP definitions. For sub-Saharan Africa, the demographic data presented in this table are slightly different from those in other tables, which are based on the UN definition (which does not include Sudan, but does include Djibouti). According to the UN definition, the population was 640 million in 2000 and 1.011 billion in 2017. Other indicators are nearly identical according to the two definitions. Figures related to the OECD in 2000 include countries that joined the OECD after 2000.

**Sources:** United Nations (2019a) for demographic indicators; UNDP (2019) for HDI; World Bank (2017) for gross national income per capita, literacy, and poverty.

natural increase) and socio-economic indicators (Human Development Index [HDI], income per capita, illiteracy, and poverty) evolved in these countries in the 2000s and 2010s, illustrating the diverse range of situations and the different rates of progress.

## I. Africa in the global context of the 2000s and 2010s

After 2 or 3 particularly difficult decades in economic, social, and health terms, including recessions, financial crises, structural adjustment plans, and a lack of progress and sometimes regression,<sup>(6)</sup> sub-Saharan Africa has, according to numerous experts, experienced renewed momentum since the start of the 2000s, both economically (with annual GDP growth rates often between 3% and 5%) and from a social and health standpoint (growth in the average living standard, a decrease in child mortality, and improvements in school enrolment). Naturally, this progress varies from one country to the next. Overall, the Afro-pessimism prevailing in the 1980s and 1990s has given way to cautious and moderate optimism among numerous authors and in most recent analyses of the region (United Nations, 2017a; UNDP, 2016). They stress the improvements under way but also address policy deficiencies, the growth in spatial and social inequalities, and persistent poverty. What, then, are the particularities of sub-Saharan Africa relative to the other major world regions in terms of development in the last 20 years? Table 1 shows the main indicators of the changes between 2000 and 2017 in the six main world regions.

Since 2000, sub-Saharan Africa has maintained the world's fastest population growth rate (around 2.7% per year compared to 0.3%–1.8% elsewhere), a very high fertility rate (4.7 children per woman in 2017 compared to 1.7–2.8 elsewhere) though having decreased slightly, and higher mortality (life expectancy of 61) though having decreased sharply (life expectancy is currently 8 years shorter than in South Asia, compared to 12 years shorter in 2000). From 2000 to 2017, the population of Africa increased by 58%, while that of the rest of the world rose by 19%. Africa now accounts for 14% of the world's population, up from 11% in 2000. This growth remains exceptional in human history.

Economically and socially, the region remains the most disadvantaged in the world, despite the progress achieved (Table 1). Average national income per capita (in purchasing power parity) has doubled since 2000 but remains considerably lower than that of the other regions. And the gap has widened, from 12% lower than South Asia in 2000 to 43% in 2017 (World Bank, 2017). All world regions, including sub-Saharan Africa, have made substantial progress on human development (HDI), but major inequalities remain. In 2016, 36 countries in sub-Saharan Africa (out of 44 worldwide) ranked in the group

(6) For a detailed account of the consequences on macro-economics, the needs of populations, and demographic dynamics, see, among others, Coussy and Vallin (1996).



of countries with low human development (United Nations, 2017b). Similarly, in the ranking of countries by poverty level, most African countries remain at the bottom. Extreme poverty (under \$1.90 a day) has decreased since 1990 but by relatively little compared to South Asia and East Asia (Table 1). Poverty remains one of sub-Saharan Africa's greatest challenges (Beegle et al., 2016). Adult illiteracy has also decreased, but much less than elsewhere. Education and standards of living, whose influence on the demographic behaviour of households and individuals is well known, remain key issues in human development and population dynamics in Africa.

Some African countries have for 20 years experienced or continue to experience ethnic, religious, or regional conflicts and health crises (including AIDS and Ebola), which have destabilized local farming, social, and healthcare systems. The continent, and the Sahel in particular, is also particularly affected by environmental degradation (droughts, deforestation, and decline in soil fertility) and global warming. These overall results conceal considerable differences in national situations, the progress achieved, and persistent inequalities between and within countries.

## II. Growth and populations since 1995

Unlike the rest of the world, the sub-Saharan region's high rate of population growth accelerated between the 1950s (2.2% per year) and the 1990s (2.7%) and has continued in the early 21st century (figures based on the latest UN revision [2019a]).

### 1. The world's highest population growth rates

Sub-Saharan Africa continues to be the developing region with by far the fastest rate of population growth, at around 2.7% a year compared to 1.8% in North Africa and the Middle East and 1.3%–0.3% elsewhere (Table 1). At the macro-geographical level, there has been no notable change since the start of the 2000s. Excluding Southern Africa, where growth is slower (1.2%), the three other main subregions (Table 2) have annual growth rates of 2.7% or higher (3.0% in Central Africa), according to the most recent UN estimations for 2015–2020 (2019a).<sup>(7)</sup> This continuity results from a persistently high average birth rate, despite slight decreases, and a sharp fall in the mortality rate.<sup>(8)</sup>

(7) Data for the 2015–2020 period and 2020 are from projections made by the UNPD based on population estimates for the 2010–2015 period or 2015. The period 2015–2020 covers a period of 5 years, from the beginning of 2015 to the end of 2019. This applies to all other 5-year periods in the article.

(8) The rate of natural increase, i.e. the difference between the crude birth and death rates. Apart from periods of intense crises, war, and conflict leading to large-scale cross-border population movements (refugees, exodus, etc.), they are relatively similar in most cases to total population growth rates (which include net international migration).

**Table 2. Population size and rate of natural increase in the 4 subregions of sub-Saharan Africa and 12 selected countries, including the 5 most populous, 1990–2020**

Region/country	Population (millions)				Population ratio 2020/2000	Rate of natural increase		
	1990	2000	2010	2020		1995–2000	2005–2010	2015–2020
Western Africa (17)	181	235	307	402	1.71	2.7	2.8	2.7
Central Africa (9)	71	96	132	180	1.87	2.9	3.2	3.0
Eastern Africa (20)	197	257	339	445	1.73	2.8	2.9	2.7
Southern Africa (5)	42	51	58	68	1.31	1.4	1.1	1.2
Overall (51 countries)	491	640	836	1,094	1.71	2.7	2.8	2.7
Burkina Faso	8.8	11.6	15.6	20.9	1.80	3.1	3.2	3.0
Ghana	14.8	19.3	24.8	31.0	1.61	2.6	2.4	2.2
Niger	8.0	11.4	16.4	24.1	2.14	3.6	3.8	3.8
Nigeria	95.2	122.3	158.5	206.1	1.69	2.5	2.7	2.6
Cameroon	11.8	15.5	20.3	26.5	1.71	2.6	2.7	2.6
DR Congo	34.6	47.1	64.6	89.6	1.90	2.9	3.3	3.2
Ethiopia	47.9	66.2	87.6	115.0	1.74	3.0	2.8	2.6
Kenya	23.7	32.0	42.0	53.8	1.68	2.8	2.9	2.3
Rwanda	7.3	7.9	10.0	13.0	1.63	2.5	2.7	2.6
Tanzania	25.2	33.5	44.3	59.7	1.78	2.7	3.1	3.0
Zimbabwe	10.4	11.9	12.7	14.9	1.25	1.7	1.8	2.3
South Africa	36.8	45.0	51.2	59.3	1.32	1.3	1.0	1.1

**Source:** United Nations (2019a). Data accessible at [www.unpopulation.org](http://www.unpopulation.org)

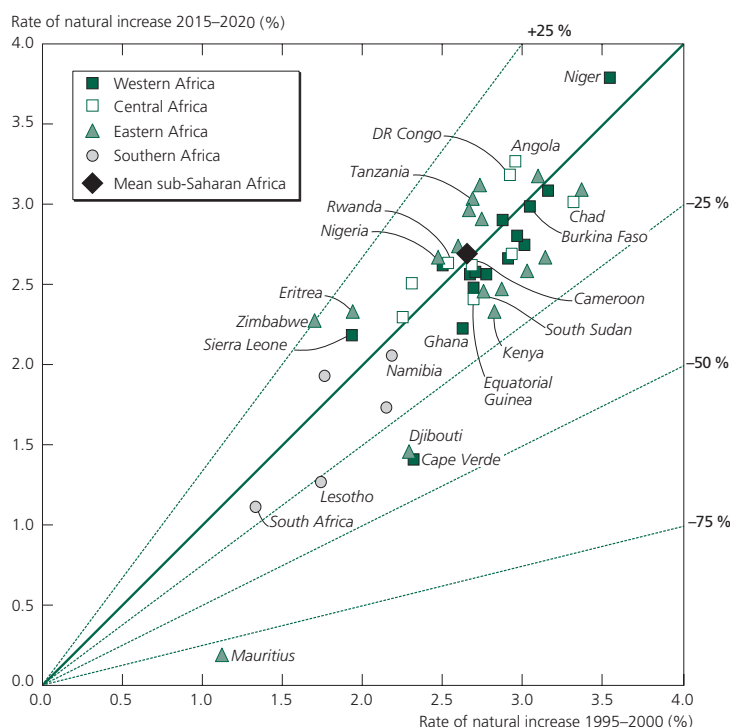
The situation varies between countries, but growth rates remain high. In a sample of 12 countries (Table 2), excluding South Africa (1.1%), the rates of natural increase for 2015–2020 range from 2.2% (Ghana) to 3.8% (Niger), with slight slowdowns in Burkina Faso, Ethiopia, Kenya, and Ghana, stagnations in Nigeria, Rwanda, and Niger, and even accelerations in other countries (over 3% in Tanzania and the Democratic Republic of the Congo). Figure 1, comparing rates of natural increase in 1995–2000 and 2015–2020 of 47 countries, confirms the relative lack of uniformity between national situations.

Growth rates have accelerated or remained stable in some 20 countries (including eight in Western Africa), while slowing slightly in 20 other countries (by 10%–20%) and falling sharply in a few others (including Mauritius, Lesotho, Cape Verde, and Djibouti). As in the 1985–2000 period, there is no clear relationship between the pace of the decreases in the last 20 years and the initial levels in 1995–2000.

## 2. Substantial increase in population size

These generally high growth rates since 2000 led to a considerable increase in the population size in most subregions and countries between 2000 and

**Figure 1. Rates of natural population increase (%) from 1995–2000 to 2015–2020 in 47 African countries**



**Interpretation:** The rate of natural increase in South Africa fell by slightly less than 25% between 1997 and 2017, while that of Zimbabwe rose by just above 25%.

**Note:** The lines correspond to changes in rates of natural increase from 1995–2000 to 2015–2020.

**Source:** Authors' construction based on United Nations (2019a).

2020 (Table 2). The region's population rose from 640 million in 2000 to 1.094 billion in 2020 (an increase of 71%). Excluding Southern Africa (31%),<sup>(9)</sup> the population in the other three regions has grown by over 71% (87% in Central Africa). Among the largest countries, the population of Nigeria has increased from 122 million to 206 million in 20 years (up 69%), that of Ethiopia from 66 million to 115 million (74%), and that of the Democratic Republic of the Congo from 47 million to 90 million (90%). But the highest increase happened in Niger, where the population has grown by a full 114%, from 11 million to 24 million. The population of small and densely populated Rwanda has risen from 8 million to 13 million (63%) despite fairly rapid changes in its population dynamic. These are exceptional trends worldwide at the start of the 21st century and more consequential than was predicted just 15 years ago.

(9) Where population growth is lower owing to a lower fertility rate and a higher mortality rate resulting from AIDS.

### 3. Growth rates constantly revised upwards since 2000

The UNPD, the source of the data above, regularly revises its population estimates and projections for the world, regions, and all countries in its *World Population Prospects* reports, including all population dynamic indicators (size, age structure, fertility, mortality, migration). Where necessary, each revision adjusts recent growth parameters and their components in light of new data, notably from the latest national surveys (such as DHS and MICS) or censuses. Following are the key revisions of the UNPD concerning Africa from 2000 to 2020.<sup>(10)</sup>

The seven revisions made between 2000 and 2019 (in 2000, 2002, 2008, 2012, 2015, 2017, and 2019) all made upwards adjustments to population growth rates for the recent past or future of sub-Saharan Africa, its subregions, and many countries. For example, population growth in the most recent period (2015–2020) was revised from 1.9% in the 2002 estimate to 2.2% in 2008, 2.5% in 2012, 2.6% in 2018, and then 2.7% in the 2019 report (United Nations, 2019a). According to the latter, population growth has been practically stable in Africa since 1985, at around 2.6% a year. At the start of the 21st century, the region has yet to enter a process of population slowdown.

These upwards revisions, for numerous countries, can be attributed to both an underestimation until 2008 or 2012 of the major (and almost unexpected) declines in mortality revealed in the most recent surveys and to an overestimation of the fall in the fertility rate. In 2008, life expectancy in the region for 2015–2020 was estimated at 55.5; today it is estimated at 60.5. From 120 deaths (at ages 0–5) per 1,000 births expected in 2008, child mortality fell to 78 per 1,000 in 2017. From 4.2 children per woman expected in 2008 for 2015–2020, the fertility rate is now estimated at 4.7 children. The fertility rate has decreased but much more slowly than expected 10 years ago.

These successive adjustments to growth estimates have led to an upwards revision of the increase in the population size of the region. From 992 million (medium variant) in 2002, the estimate grew to 1.081 billion in 2008 and 1.106 billion in 2020. The population projections for Nigeria in 2020, for example, increased from 177 million in the 2002 revision to 193 million in that of 2008 and to 206 million in the 2019 revision (for a total increase of 29 million, or 16%). This brief review of the successive reassessments made in the 2000s and 2010s suffices to show the uncertainty of trends and the need for caution when making projections.

### 4. The growing proportion of the African population in the world total

The share of the sub-Saharan population in the world total has increased considerably in the last 30 years, from 9.2% in 1990 to 10.5% in 2000, to 12.1%

(10) The results presented here are those of the medium variant (the most plausible) of the UN projections.

in 2010, and to an expected 14% in 2020. It accounted for 19% of the absolute growth of the world population from 1990 to 2000, 25% from 2000 to 2010, and 31% over the last decade (35% as part of the large group of ‘developing’ countries). Africa now accounts for over 1 out of 4 births worldwide, compared to 1 out of 6 in the 1990s. From 2015 to 2020, the five most populous countries in the region alone (Table 2) accounted for more than twice as many births (88 million) as Europe did in its entirety (38 million) and nearly half of the births in the region. These figures are set to increase.

### III. The diversity of demographic transitions in Africa

Recent syntheses on demographic changes in Africa all agree on the diversity of the pace and intensity of demographic phenomena from one country to the next (see, for example, Tabutin and Schoumaker, 2004; Ferry, 2007; Odimegwu and Kekovole, 2014; Groth and May, 2017). This is particularly true for fertility. As early as 2004, the ‘rapid and probably irreversible diversification of African demographic regimes’, the ‘fragility or uncertainty of recent changes’, and the ‘reversibility of progress’ were already a reality (Tabutin and Schoumaker, 2004, p. 518). Africa is plural.

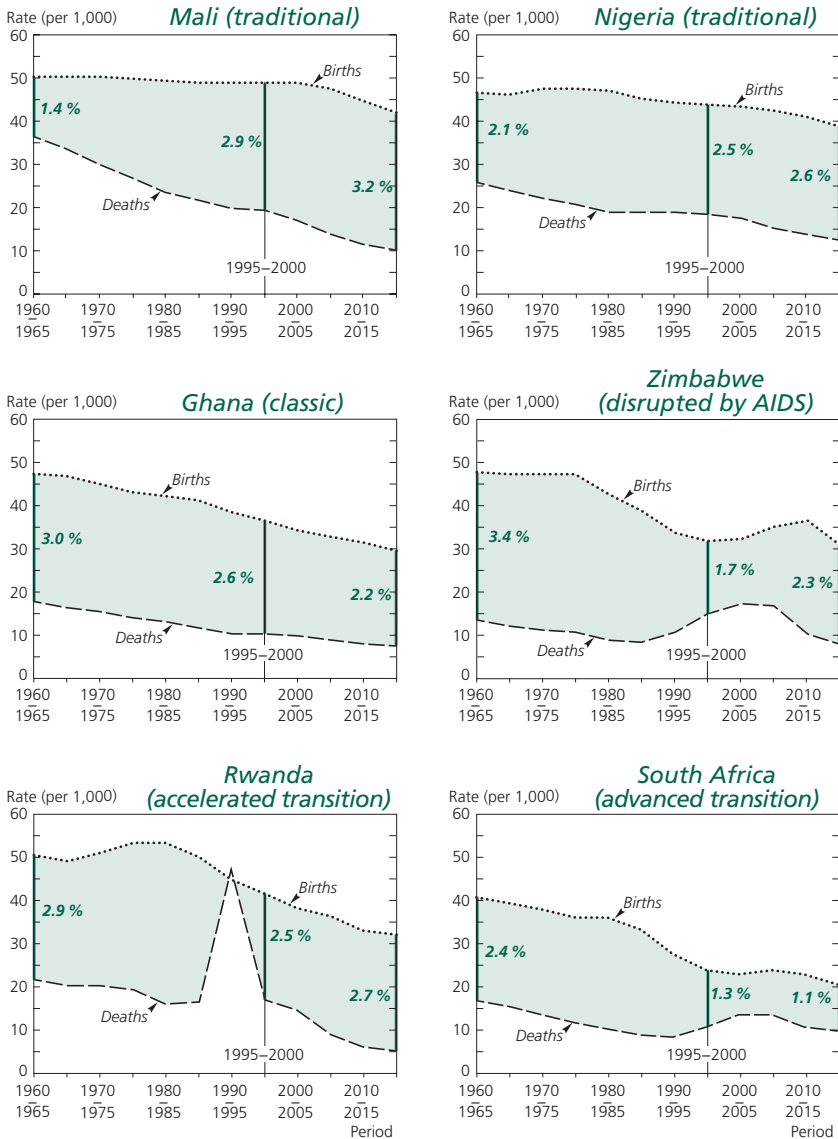
Although natural increase remains high in many countries, the region as a whole has entered a process of demographic transition initiated by a decrease in mortality in the last 50 years and even earlier in some countries. In the recent period, this shift has continued with a decline between 1997 and 2017 in crude birth rates (from 42.2 per 1,000 to 35.5 per 1,000) and, above all, in crude death rates (from 15.6 per 1,000 to 8.7 per 1,000). But increasing diversity and disparities are being observed in the region between subregions or countries, according to economic, social, cultural, and political contexts.

Figure 2, based on the most recent UN data from 2019, illustrates this variety in transitional histories (1950–2020) with the example of six countries demonstrating the diversity of situations in Africa. Five main models can be distinguished:

1. The still almost traditional model illustrated by Mali and Nigeria, where birth rates remain high in 2020 (at around 40 per 1,000) while the mortality rate has decreased but is still higher than elsewhere, resulting in substantial natural increase (2.5% to 3%). As at the end of the 1990s, this model is found in 10 other countries, among the poorest, in Western Africa (Burkina Faso, Guinea, and Niger), Central Africa (Angola, the Democratic Republic of the Congo, and Chad) and Eastern Africa (Burundi, Uganda, Somalia, and South Sudan).
2. The relatively mature and regular model illustrated here by Ghana, where the birth rate (30 per 1,000) and mortality rate (8 per 1,000) have fallen steadily in the last few decades and natural increase is diminishing slightly. Senegal and Gabon may also be included.

3. The model strongly impacted by AIDS, including that of Zimbabwe and South Africa, where mortality is relatively low today, with major increases in the 1990s (resulting from AIDS) followed by considerable decreases, and a relatively low birth rate (between 20 per 1,000 and 30 per 1,000).<sup>(11)</sup> This model notably includes Southern African countries.

Figure 2. The main models of demographic transition in sub-Saharan Africa, 1960–2020



Source: Models constructed from United Nations (2019a).

(11) We will return to the subject of the slight increase in the birth rate in Zimbabwe from 1995 to 2010.

4. The accelerated transition model, evident in Rwanda despite the genocide in 1994, where birth and mortality rates have fallen swiftly in the last 35 years. Botswana, Ethiopia, and Kenya can also be included.
5. The advanced transition model, that (not represented here) of small countries or islands (Cape Verde, Mauritius, Seychelles) with birth rates of under 20 per 1,000, high life expectancy (over 70), and lower natural increase (under 1.5%). South Africa can be included in this group except for the 20 years of high mortality owing to AIDS.

The crude birth rate, a driving component in population growth, is falling in many countries but at varying speeds. The number of countries with a birth rate of over 40 per 1,000 decreased from 32 (out of 47) in 1990–1995 to 6 in 2015–2020. In contrast, the number of countries with a birth rate of 35–40 per 1,000 increased from 10 to 15 (Appendix Table A.2).

#### IV. Marriages and families

The most recent literature on marriages and families in Africa not only highlights the difficulties associated with measurement in this field<sup>(12)</sup> but also makes frequent use of the terms ‘complexity’, ‘diversity’, ‘new modalities of union formation’, and ‘plurality of matrimonial models’. In the 1980s and 1990s, while marriage remained the rule and polygamy persisted, ages of entry into union began to rise and diversify. Clear regional patterns of nuptiality emerged, with Western Africa typified by early marriage, universal marriage, significant polygamy, extended families, etc., Southern Africa by late marriage, considerable singlehood, little polygamy, and greater ‘nuclearization’ of families, and Eastern Africa by its intermediate situation (Lesthaeghe et al., 1989a; Tabutin and Schoumaker, 2004; Hertrich, 2007).

What has changed since 2000 regarding age at marriage, age gaps between spouses, singlehood, polygamy, family size, the feminization of household heads, and the fostering of children? These characteristics are important in demographic and social dynamics and are fairly well documented in the literature<sup>(13)</sup> and national surveys. Analysis of these characteristics is based, firstly, on several recent syntheses (Marcoux and Antoine, 2014; Shapiro and Gebreselassie, 2014; Hertrich, 2017; Meekers and Gage, 2017; Calvès et al., 2018b) and secondly, on the evolution of indicators between two DHS surveys (one from the late 1990s, the other from the 2010s) for the 10 reference countries. Appendix Table A.3 presents the nuptiality situation in the 39 countries that carried out a DHS in the 2010s<sup>(14)</sup>: age of entry into union for men and women, age gap between spouses, prevalence of polygamy,

(12) On this point, see Antoine (2002) or Hertrich (2014).

(13) Although nuptiality is still not a priority research topic in Africa.

(14) Apart from Cape Verde (2005), Mauritania (2001), and Eritrea (2002).

proportion of early unions (under 15 and 18 years), and singlehood of women at 40–49 years old.

## 1. Marriage or union remains the norm

The observation made 15 years ago remains the same: ‘marriage remains a quasi-universal social norm in Africa’ (Tabutin and Schoumaker, 2004, p. 472). Apart from Southern Africa, where permanent singlehood is now considerable (more than 30% of women are single at ages 40–49 in South Africa), elsewhere almost all men and women form a union, but somewhat later than before. This is observed through the general increase in the proportion of single men at ages 15–19, 20–24, and even 25–29 (data not shown). Time to marriage is, on average, a bit longer but prevalence remains very high. Female singlehood at ages 40–49 rarely exceeds 3% (Appendix Table A.3), and 5%–6% among men. When change does occur, it is in the city, particularly in the capitals (Dakar, Lagos, Ouagadougou, Abidjan, Yaoundé, Kinshasa, etc.) (Antoine and Marcoux, 2014; Calvès and N’Bouke, 2018a; Nappa et al., 2019).

## 2. A slow increase in the age at first union

The most recent overviews<sup>(15)</sup> agree that there has been a widespread increase in the age at first union of both men and women, especially in cities and in capital cities in particular, among individuals belonging to the most educated and advantaged social groups. Antoine (2002) demonstrated that this phenomenon was already occurring during the 1980s and 1990s. The study by Rutaremwa (2014), based on censuses conducted during the 1990s and 2000s in around 10 countries, observed the same trend. Shapiro and Gebreselassie (2014) confirm this in their recent study on changes between the 1990s and 2000s in 26 sub-Saharan countries. The impact of delayed nuptiality on fertility is much more pronounced in cities than in rural areas. Marcoux and Antoine (2014) also highlight the role of urbanization in this increase, for eight countries, due to the education of young girls and changes in family-formation norms and behaviours, but also to difficulties encountered when forming a couple (access to employment and housing).

The data in Table 3 on changes in median age at first union for women<sup>(16)</sup> in the 10 reference countries confirm the disparity of situations in both the 1990s and the 2010s. This age, which, except for South Africa, ranged from 15 to 21 years, is now largely between 16 (Niger) and 22 (Rwanda). Changes are noticeable for all the countries, although the ages are quite disparate (low in Burkina Faso and Niger, higher in Ghana, Rwanda, and Nigeria). Apart from the extreme situations (under 16 years old in Niger in 2012 and over 31 in

(15) For a global and regional view of trends in ages at marriage and singlehood from the 1970s to the 2000s, see Ortega (2014), a study based on the extensive database established by the United Nations on marriage in 2009.

(16) Age at which 50% of women had entered a union.



**Table 3. Absolute change in women's age at first union, age difference between spouses, and polygamy, by place of residence in 10 African countries, 1990s–2010s**

Country and DHS survey date		Median age at first union <sup>(a)</sup>			Percentage of women in a union before <sup>(b)</sup> ...		Age difference between spouses <sup>(c)</sup>			Percentage of women in polygamous unions <sup>(d)</sup>		
		Urban	Rural	Total	age 15	age 18	Urban	Rural	Total	Urban	Rural	Total
Niger	1998	15.8	15.0	15.1	39	79	8.8	6.3	7.0	39	38	38
	2012	17.9	15.6	15.7	29	76	9.8	8.4	8.8	31	37	36
	Change	+2.1	+0.6	+0.6	–10	–3	+1.0	+2.1	+1.8	8	–1	–2
Nigeria	1990	19.0	16.3	16.9	28	53	—	—	—	34	43	41
	2013	20.8	16.6	18.1	20	45	8.5	9.0	8.9	22	39	33
	Change	+1.8	+0.3	+1.2	–8	–8	—	—	—	–12	–4	–8
Cameroon	1998	18.4	16.8	17.4	18	47	7.8	7.8	7.8	26	37	33
	2011	20.0	17.3	18.5	14	40	7.3	7.2	7.2	26	34	31
	Change	+1.6	+0.5	+1.1	–4	–7	–0.5	–0.6	–0.6	0	–3	–2
Burkina Faso	1993	18.6	17.5	17.6	10	63	8.0	7.4	7.6	31	55	51
	2010	19.2	17.6	17.8	10	52	8.2	7.5	7.7	21	48	42
	Change	+0.6	+0.1	+0.1	0	–11	+0.2	+0.1	+0.1	–9	–7	–9
Tanzania	1996	18.7	18.2	18.3	8	39	6.9	6.5	6.6	21	30	28
	2016	20.4	18.7	19.2	6	32	5.6	4.7	5.1	12	21	19
	Change	+1.7	+0.5	+0.9	–2	–7	–1.3	–1.8	–1.5	–9	–9	–9
Ghana	1998	19.7	18.8	19.1	7	34	—	—	6.5	16	26	23
	2014	22.7	19.2	20.7	5	22	5.5	5.7	5.7	11	21	16
	Change	+3.0	+0.4	+1.6	–2	–12	—	—	–0.8	–5	–5	–7
Kenya	1998	21.0	18.8	19.2	8	28	—	—	5.6	11	18	16
	2014	22.5	19.5	20.2	6	26	4.4	5.3	5.1	10	16	14
	Change	+1.5	+0.7	+1.0	–2	–2	—	—	–0.5	–1	–2	–2
Zimbabwe	1999	20.0	18.8	19.3	6	29	4.7	5.5	5.2	8	20	16
	2015	21.2	19.1	19.8	4	31	5.0	6.1	5.8	8	15	12
	Change	+1.2	+0.3	+0.5	–2	+2	+0.3	+0.6	+0.6	0	–5	–4
Rwanda	2000	21.5	20.5	20.7	2	18	5.6	3.4	3.6	9	13	12
	2015	23.2	21.7	21.9	1	8	5.0	3.1	3.3	7	8	8
	Change	+1.7	+1.2	+1.2	–1	–10	–0.6	–0.3	–0.3	–2	–5	–4
South Africa	1998	24.8	22.9	24.2	2	9	—	—	—	10	17	13
	2016	—	—	31.4	1	5	—	—	2.6	5	8	6
	Change	—	—	+7.2	–1	–4	—	—	—	–5	–9	–7

(a) Women in a union aged 25–49 at the time of the survey.

(b) Women in a union aged 20–29 at the time of the survey.

(c) Difference between median ages at first union of men (ages 30–59) and women (ages 25–49).

(d) Women in a union aged 15–49 at the time of the survey.

**Note:** Dashes indicate an absence of data. Countries ordered by increasing national median age of women at first union in the 1990s.

**Sources:** Demographic and Health Surveys.

South Africa in 2016), most of the median ages observed in sub-Saharan countries in the 2010s are similar to those of South Asia, where the median age at first union among women is between 18 and 21, depending on the country (Ortega, 2014; Hertrich, 2017). Of the 39 countries listed in Appendix Table A.3, six (all Sahelian) have a median age of under 18 for women, 29 show a median age of between 18 and 21, and only four show a median age of over 21 (South Africa, Gabon, Rwanda, and Cape Verde). The median age for men is over 24 years in 28 countries, and in 15 of those it is over 26 (with Senegal as high as 30).

### 3. Declining but still frequent teenage marriage

Africa has long been regarded as a region of early marriage and sexual activity, with a significant proportion of unions occurring between the ages of 13 and 18 among women,<sup>(17)</sup> and much later for men. Early marriage of young girls is declining but has by no means disappeared. The proportion of women among those aged 20–29 who were married before the age of 18 was less than 15% in only 3 out of 39 countries (South Africa, Namibia, and Rwanda). It was between 15% and 30% in seven countries and over 30% in 29 countries, in six of which it was over 50% (Burkina Faso, Chad, Guinea, Mali, Niger, and Mozambique) (Appendix Table A.3). Very early marriage (before age 15) is still observed in a large number of countries. While it has virtually disappeared in Southern Africa, Rwanda, and Burundi, more than 10% of women aged 20–29 were married before the age of 15 in some 20 countries (Appendix Table A.3). Despite the rise of age at first marriage in many countries, sub-Saharan Africa overall continues to have the highest prevalence of adolescent marriage. Distinguishing between the under-15s and the 15-to-17s, Koski et al. (2017) assessed levels and trends since 1985 in 31 countries in the region based on available DHS surveys and censuses. Marriage before the age of 18 is declining overall, but in over half of these countries more than one-third of girls are still married before adulthood; the reduction mainly affects those aged 15–17. This situation persists despite efforts to combat the practice of early marriage and a legal age of 18 years for marriage in 25 out of the 31 countries.

The data for the 10 selected countries (Table 3) clarifies these trends for younger generations of women (aged 20–29 at the time of the survey). On the one hand, we observe a diversity of situations. In the 2010s, the prevalence of unions before the age of 18 ranges from 76% in Niger to 40% in Cameroon, 26% in Kenya, and 8% in Rwanda. On the other hand, the decline in early marriage is unrelated to its starting level and differs greatly between one country and another: almost no decline in Niger, Kenya, and Zimbabwe; a much more marked decline in Rwanda, Ghana, and Burkina Faso. Marriage before the age of 15 is becoming rare, as we have mentioned, in Southern Africa

(17) Child marriage is defined by the United Nations as marriage occurring before the age of 18. Some studies on the subject distinguish between those at under 15 years and those between 15–17.

and Rwanda (between 1% and 2%). In Tanzania, Ghana, and Kenya, it is declining but remains between 6% and 9%. In Nigeria and Guinea, there is little change, remaining at around 20%. Sub-Saharan Africa as a whole remains a long way from eradicating the marriage of very young women. This is reflected in higher adolescent fertility than in other regions of the world.<sup>(18)</sup>

#### 4. Age gaps between spouses remain substantial

The ages at which men enter unions have also risen, although already high (often 25 or 26 years in the 1990s), but somewhat less rapidly than for women. Age gaps between spouses in sub-Saharan Africa are among the largest in the world, reflecting differences between men's and women's ages at first union and the existence of polygamy. By 2010, the average disparity was less than 4 years in 6 out of 39 countries, 4–6 years in 14 countries, and greater than 6 years in 18 countries (reaching 10 years in The Gambia and Senegal) (Appendix Table A.3). Gaps narrowed only slightly between the 1970s and 1990s, from 6.1 to 5.6 years on average (Tabutin and Schoumaker, 2004). Over the past 40 years, these gaps have been particularly high in Western and Central Africa (8.8 years in Niger, 7.2 years in Cameroon, and 7.7 years in Burkina Faso) and lower in Eastern and Southern Africa (5.8 years in Zimbabwe and 3.3 years in Rwanda) (Table 3). In the 10 countries examined, situations have, on the whole, changed little since the early 2000s (Cameroon, Tanzania, Ghana, and Kenya), but some countries are experiencing an increase in age gaps (Niger and Zimbabwe). No overall trend emerges from the results by rural or urban place of residence.

#### 5. Polygamy in slight decline

Polygyny<sup>(19)</sup> (commonly referred to as polygamy) is still prevalent in Africa, constituting one of the fundamental pillars of family structure in the region, alongside other types of unions: 'Even in a polygamous society, it is not the only form of union possible, but all (men and especially women) are at risk of experiencing this type of union' (Antoine, 2002, p. 83). For a long time, its prevalence has varied significantly within the region, between subregions, between neighbouring countries sometimes, and between social or ethnic groups within the same country.<sup>(20)</sup> Levels were and remain particularly high in Western and Sahelian Africa (50% of women were in polygamous unions at ages 35–44 around the year 2000). This figure was slightly lower in

(18) For an overview of the laws on minimum age of marriage in Africa and their relationship to the prevalence of early marriage and adolescent fertility, see Maswikwa et al. (2016).

(19) The form of marriage in which a man has several wives at once.

(20) To our knowledge, there is no consensus regarding any theory or explanation, recent or otherwise, proposed in the literature on the diversity and evolution of polygamy. On this point, see Fenske (2011). The author empirically tests, in 31 countries, some of the major economic and other hypotheses made over the past 30 years: economic inequality between countries, women's agricultural productivity, economic growth, slavery, education, and child mortality.

Central Africa (39%), much lower in Eastern Africa (23%), and relatively low in Southern Africa (14%) (Tabutin and Schoumaker, 2004). Recent work by Whitehouse (2017) on the evolution of polygamy in Western Africa, conducted in 14 countries using the latest DHS surveys, confirms the extent of the practice in this subregion. In the 2010s, the proportion of women in polygamous unions was only under 10% in 6 out of 39 countries (Burundi, Rwanda, Eritrea, Madagascar, South Africa, and Lesotho). It was between 10% and 20% in 12 countries and over 20% in 21 countries, in eight of which (notably in Western Africa) it was over 35% (Appendix Table A.3).

According to surveys from the 2000s and 2010s, the decline in polygamy is visible in sub-Saharan Africa but can be described as modest in relation to the policies and legislation implemented. These are more restrictive but have an uneven impact despite obligations or constraints in some countries. For example, although Côte d'Ivoire has prohibited the practice since 1964 and Benin since 2004, polygamy still affected 29% and 39% of women aged 15–49, respectively, in the 2010s. Between the two DHS surveys, 15 or 20 years apart, changes in the proportions of women aged 15–49 in polygamous unions confirm geographical variation both in the 1990s and 2010s (Table 3); around 2015, the prevalence was approximately 40% in Burkina Faso and Niger, 20%–30% in Cameroon and Tanzania, 15% in Ghana, Kenya, and Zimbabwe, and 7% in Rwanda (see Appendix Table A.3 for the most recent data on 39 countries). These figures also confirm the general decline, albeit of varying intensity, in this practice.

In these 10 countries, as in many others, the degree of polygamy is closely related to the place of residence (urban or rural), women's level of education, and household standard of living (data not presented here). The decline in polygamy is more significant in urban areas than in rural ones (Table 3). Some capitals, such as Ouagadougou (Burkina Faso), Accra (Ghana), Lagos (Nigeria), and to a lesser extent Niamey (Niger), now have polygamy rates that are slightly lower than the country's urban average, according to the results of the latest DHS surveys. In the future, polygamy is likely to become increasingly concentrated in rural areas. In all countries, illiterate women are, by far, most likely to be in a relationship with a polygamous man, with gaps between the highest and lowest groups in terms of education ranging from 1 to 3 or 4. As for standard of living, Niger excepted, the gradient is clear in our sample: the higher a household's standard of living, the lower the likelihood of polygamy; the poorest households (bottom quintile) are by far the most polygamous.

## 6. Divorce and remarriage remain poorly documented

Polygamy, as well as divorce and widowhood, as in other regions of the world, remain the major matrimonial 'risks', especially in rural areas, for the poorest, least educated women, who are the most dependent on their spouse

or family. Arranged marriages, domestic violence and conflict, female infertility, significant age disparity between spouses (especially in polygamous systems), and AIDS, etc., can lead to marital instability. But the incidence and timing of divorce, widowhood, and potential remarriage remain, overall, the least well-documented elements of African demography.<sup>(21)</sup>

The few studies conducted on divorce in the 1970s and 1980s all showed its high frequency and geographical variation, with divorce more frequent in Western Africa (often followed by rapid remarriage among women) than in Eastern Africa (Lesthaeghe et al., 1989a; Tabutin and Schoumaker, 2004). Most research has since tended to focus on a single country or on particular cities, based on specific surveys (Dial [2007] on Dakar and Saint Louis; Antoine [2006] on Antananarivo, Dakar, Lomé, and Yaoundé; Calvès [2016] or Gnoumou Thiombiano and Legrand [2014] on Burkina Faso). But recently, Clark and Brauner-Otto (2015) reviewed union breakdowns in Africa: geographical distribution, changes in the stability of unions over time, and associated factors. Their study, looking at 33 countries based on DHS surveys from the 2000s, confirms the high incidence of union breakdowns (a regional average of 33% after 15 to 20 years of union, three-quarters of which are due to divorce), the significant geographical variation in divorce rates (from under 12% in Mali, Burkina Faso, and Nigeria to over 40% in Liberia and Congo Brazzaville), and its preponderance over widowhood everywhere.<sup>(22)</sup> On the other hand, contrary to the expectations of authors and sometimes to the literature, no country shows a clear increase. Divorce is even reported to have declined in half of the countries (including Benin, Ghana, Liberia, Madagascar, Malawi, and Niger). At the aggregate level, the explanation would be that divorce is more frequent in the most urbanized countries—those with the highest rates of female labour force participation and the highest incidence of early marriage—but that its intensity declines with an increase in female education. These relationships would need to be verified at the individual level using the surveys from the 2010s.

## 7. Slight decline in household size

Without going into the concepts, measures, and definitions of family and household,<sup>(23)</sup> or the different factors, varying from one country to another, that can influence their size (fertility and mortality levels, migration, fostering of children, polygamy, residence and inheritance rules, housing access, etc.), there has been a slight decline in recent years in household size in the 10 reference

(21) Measuring these events requires the complete marital biographies of men and women, which are absent from DHS and MICS surveys and censuses.

(22) Except for countries such as Lesotho and Eswatini, which were heavily affected by AIDS in the 1990s and 2000s.

(23) See, for example, Pilon and Vignikin (2006), van de Walle (2006), and Randall et al. (2011). Definitions of household may vary between surveys, censuses, and countries, and they may change over time, meaning that results are sometimes not comparable or difficult to interpret.

countries (Table 4, DHS surveys<sup>(24)</sup>). This is an approximately 0.3-person reduction compared to the mean household size of 5.1 persons per household in the 1990s. Moreover, the decline varies from one country to another, being very slight in DR Congo, Tanzania, Kenya, and Ghana and more significant in Cameroon and Rwanda, without any relation to starting size or place of residence (except in Rwanda and Cameroon, where the decline is small in rural areas and much larger in cities).

As in the 1990s (Pilon and Vignikin, 2006), situations are disparate. Household sizes today range from fewer than four people (e.g. Ghana, Kenya, and Zimbabwe) to more than six (e.g. Niger, Chad, and Senegal). Overall, as in the past, Western Africa, particularly the Sahel, is where households are largest, reflecting more extended family structures, and it is in Eastern and Southern Africa that they are traditionally smaller.<sup>(25)</sup>

## 8. Increase in female household heads

The growth in the proportion of female heads of household, noted as early as the 1980s and 1990s (Pilon et al., 1997; Locoh et al., 2008), continues almost everywhere except in Rwanda and Ghana, where it seems to have declined slightly in both urban and rural areas (respectively, from 37% to 34% and from 36% to 31%). It is increasing in the other eight reference countries by 3 to 7 points (Table 4) but with no clear relationship to starting level and with no great difference between urban and rural areas. These proportions vary widely between countries, from 10%–20% in Niger, Burkina Faso, and Nigeria to over 30% in Ghana, Kenya, and Rwanda, and even up to 40% in Zimbabwe.

That a woman declares herself ‘household head’ in a survey or census may reflect one of many very different histories and situations (Delaunay et al., 2018). Aside from singlehood, it may reflect the consequences of women’s marital history (separation, divorce, widowhood, polygamy with a separate residence from co-wives), the migration of their husband (to the city or abroad), or, sometimes, their degree of economic autonomy, as in the countries around the Bight of Benin. AIDS in Southern Africa and the genocide in Rwanda (1994) resulted in significant adult male mortality, which partly explains the high proportions of female heads of household in these two countries. There is no consensus in the literature on the economic and health situation of these female-headed households in terms of poverty, social isolation, and benefits for children, although many studies report more disadvantaged situations (Milazzo and van de Walle, 2017).

(24) These DHS surveys define the size of a household as the number of persons reported by the household head or who report themselves as usually living in the household.

(25) There is a lack of recent census-based work on changing family structures in sub-Saharan Africa. For the 1990s, see the work of Ibisomi and De Wet (2014) based on the censuses of seven countries (Mali, Rwanda, Kenya, Tanzania, Uganda, Malawi, and South Africa).

**Table 4. Absolute change in mean household size, percentage of female household heads, and households including children without their parents, by place of residence, 10 African countries**

Country and DHS survey date		Average household size			Percentage of female household heads			Percentage of households including children without their parents <sup>(a)</sup>		
		Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
Burkina Faso	1993	6.1	6.8	6.7	13	5	7	27	20	21
	2010	5.1	5.9	5.7	15	8	10	26	16	19
	Change	-1.0	-0.9	-1.0	+2	+3	+3	-1	-4	-2
Ghana	1998	3.3	3.8	3.6	39	35	37	15	16	16
	2014	3.1	3.9	3.5	37	30	34	16	17	17
	Change	-0.2	+0.1	-0.1	-2	-5	-3	+1	+1	+1
Niger	1998	6.2	5.8	5.9	15	13	13	22	23	23
	2012	5.9	5.9	5.9	15	16	16	20	22	21
	Change	-0.3	+0.1	0	0	+3	+3	-2	-1	-2
Nigeria	1990	4.8	5.6	5.4	18	13	14	7	7	7
	2013	4.2	4.9	4.7	23	17	19	15	17	16
	Change	-0.6	-0.7	-0.7	+5	+4	+5	+8	+10	+9
Cameroon	1998	5.4	5.5	5.5	26	21	22	24	22	22
	2011	4.6	5.4	5.0	27	24	25	27	28	27
	Change	-0.8	-0.1	-0.5	+1	+3	+3	+3	+6	+5
Kenya	1998	3.3	4.6	4.1	23	34	32	8	18	14
	2014	3.2	4.4	3.9	27	36	34	11	21	17
	Change	-0.1	-0.2	-0.2	+4	+2	+2	+3	+3	+3
Rwanda	2000	5.0	4.5	4.6	31	37	36	30	21	22
	2015	4.1	4.3	4.3	27	32	31	20	20	20
	Change	-0.9	-0.2	-0.3	-4	-5	-5	-10	-1	-2
Tanzania	1996	4.3	5.1	4.9	23	21	22	20	21	21
	2016	4.3	5.1	4.8	26	24	25	26	27	27
	Change	0	0	-0.1	+3	+3	+3	+6	+6	+6
Zimbabwe	1999	3.5	4.5	4.3	23	40	34	11	27	21
	2015	3.7	4.3	4.1	38	42	41	21	36	31
	Change	+0.2	-0.2	-0.2	+15	+2	+7	+10	+9	+10
South Africa	1998	3.9	4.7	4.2	36	50	42	17	34	24
	2016	3.1	3.8	3.4	38	52	44	16	32	22
	Change	-0.8	-0.9	-0.8	+2	+2	+2	-1	-2	-2

(a) Children fostered or taken in by the household: children under 15 or 18, depending on the survey, living in a household with neither their father nor mother.

Sources: Demographic and Health Surveys.

## 9. Child fostering remains common

In Africa, the care of children is not always the sole responsibility of the biological parents. The family in the broadest sense (elder brothers and sisters, uncles and aunts, grandparents, etc.) contributes by caring for related children, for various reasons: illness, death, parental divorce, conflict, domestic help, schooling, etc. The circulation and fostering of children, which sometimes goes as far as their adoption, is not a phenomenon specific to the region, but 'it is a characteristic feature of African family systems, fitting in with patterns of family solidarity and the system of rights and obligations...reinforcing family and social bonds, and maintaining high fertility behaviours' (Pilon and Vignikin, 2006, p. 66).

An approximate measure of the phenomenon is the proportion of households with children under the age of 15 without either biological parent being present. The results by place of residence in the 10 reference countries do not show any major changes over the last 15–20 years (Table 4). The proportion of households that include fostered children ranges, for the 2010s, between 16% (Nigeria) and 31% (Zimbabwe). It is increasing in Nigeria, Tanzania, and Zimbabwe, no doubt due to the high number of orphans related to the AIDS epidemic. In both Burkina Faso and DR Congo, the proportion of children fostered or taken in is higher in towns and cities, while the opposite is true in Kenya and Zimbabwe. Child fostering remains common. The reasons for this are currently poorly documented, due to the lack of specific information on this subject in national surveys or censuses. Fostering undoubtedly has positive effects for some children (strengthening family ties, social and health protection, schooling, etc.) but negative effects for others (neglect, abuse, labour exploitation, etc.). Child protection in contexts of poverty and conflict should be a priority research topic (Delaunay, 2009).

## 10. New family models?

This issue is not new and has been discussed in the literature for some 30 years, although studies on the family have been less numerous than those on fertility, mortality, and, more recently, migration. The most recent studies (Vignikin and Vimard, 2005; Marcoux and Antoine, 2014; Calvès et al., 2018), many of them focused on Western Africa, agree on several points: the diversification of family structures and dynamics (between towns and countryside, and between different countries), the evolution of family, community, and intergenerational solidarity (still present but often focused on close family and friends), the emergence of new forms of entry into union and sexuality (increasing cohabitation outside of marriage almost everywhere, especially in towns), the development of a certain individualism, and detachment from the elderly among younger generations. Africa is far from the model of the nuclear family, but as Calvès et al. (2018) explain, 'family structures and



configurations are changing, and marital and family bonds, as well as the place and status of individuals within families, are being redefined' (p. 1).

## V. Fertility and its determinants

Fertility has a considerable influence on population size and age structure, and its evolution over coming decades will be crucial for the demography of sub-Saharan Africa (Gerland et al., 2017; Schoumaker, 2017a). The 1980s and 1990s saw significant fertility declines in only a few countries, notably in Southern Africa. At the end of the 1990s, in most countries, fertility rates were still 6–7 children per woman (the regional average was 5.9). Has the fertility transition in Africa accelerated since 2000? Has it caught up with that of other developing regions? Are there any significant changes in childbearing timing? What are the major determinants of these changes (contraception, demand for children, etc.)?

This section looks at the major fertility trends, the heterogeneity of countries and social groups, and the factors associated with fertility rates and changes. Analyses of overall trends are based on the most recent UN estimates (2019a), and the DHS surveys for the 10 countries selected are used to analyse the evolution of spatial and social inequalities. Appendix Table A.4 shows the change in fertility and contraceptive use between 1970 and 2020 in 47 countries. Appendix Table A.5 presents the characteristics of fertility in the 2010s based on the latest DHS surveys from 39 countries (TFR, number of children at age 45, ideal number of children, age at first birth, adolescent fertility, and birth intervals).

### 1. Later fertility decline and at variable pace

The fertility decline in sub-Saharan Africa started much later than in other regions of the world and occurred at a slower overall pace than elsewhere (Tabutin and Schoumaker, 2004; Shapiro and Tambashe, 2008; Bongaarts and Casterline, 2013; Bongaarts, 2017). By the end of the 1980s, only a few countries (Botswana, Ghana, Kenya, Mauritius, South Africa, and Zimbabwe) had begun their fertility transition, and on a continental scale the decline was modest (6.5 children in 1985–1990 vs. 6.8 children 10 years earlier). The movement accelerated somewhat from the 1990s onwards, and today most countries in sub-Saharan Africa are experiencing a fall in fertility rates. At the end of the 1990s, the region's TFR was just under 6.0 children per woman and is estimated at 4.7 children in 2017 (Table 5; Figure 3). However, fertility remains significantly higher than in the other developing regions where, except in North Africa, the fertility transition has been completed or is almost complete (Table 5).

Over the past 20 years, fertility has declined by about half a child per decade for sub-Saharan Africa as a whole. Nevertheless, the changes have

**Table 5. Total fertility rate, modern contraceptive prevalence, and adolescent fertility in 1997, 2007, and 2017 by subregion**

Subregion	Total fertility rate <sup>(a)</sup>				Modern contraceptive prevalence <sup>(b)</sup>				Fertility of adolescent girls aged 15–19 (per 1,000) <sup>(c)</sup>			
	1997	2007	2017	Change 1997–2017 (%)	1997	2007	2017	Change 1997–2017 (%)	1997	2007	2017	Change 1997–2017 (%)
Western Africa	6.2	5.7	5.2	–16	7	10	18	+157	139	127	112	–19
Central Africa	6.5	6.2	5.5	–15	5	8	13	+150	153	146	129	–16
Eastern Africa	6.1	5.4	4.4	–28	13	24	38	+187	131	111	89	–32
Southern Africa	3.0	2.7	2.5	–17	52	58	56	+8	82	61	47	–43
Sub-Saharan Africa	5.9	5.4	4.7	–20	12	18	27	+126	133	119	101	–24
North Africa	3.5	3.1	3.2	–9	41	48	49	+20	49	46	42	–14
East Asia	1.6	1.6	1.6	0	81	82	81	0	9	7	6	–33
South Asia	3.6	2.9	2.4	–33	39	46	47	+22	79	50	32	–60
Southeast Asia	2.7	2.4	2.2	–19	49	55	57	+16	43	44	44	+2
Latin America and Caribbean	2.6	2.2	2.0	–23	61	67	69	+13	84	70	61	–27
Developing countries	3.0	2.7	2.6	–13	53	56	56	+6	65	52	48	–26
World	2.8	2.6	2.5	–11	54	57	57	+6	59	49	44	–25

(a) Sum of age-specific fertility rates observed at a given moment. The TFR can be interpreted as the average number of children that a woman would bear if she experienced the period fertility rates at each age and survived until age 50.

(b) Percentage of women in a union using a modern contraceptive method. Modern methods include the contraceptive pill, implants and patches, injections, intrauterine devices, female or male sterilization, condoms, and various vaginal methods (such as the diaphragm, vaginal ring, and spermicidal gel or foam).

(c) Annual births per 1,000 women aged 15–19 in completed years.

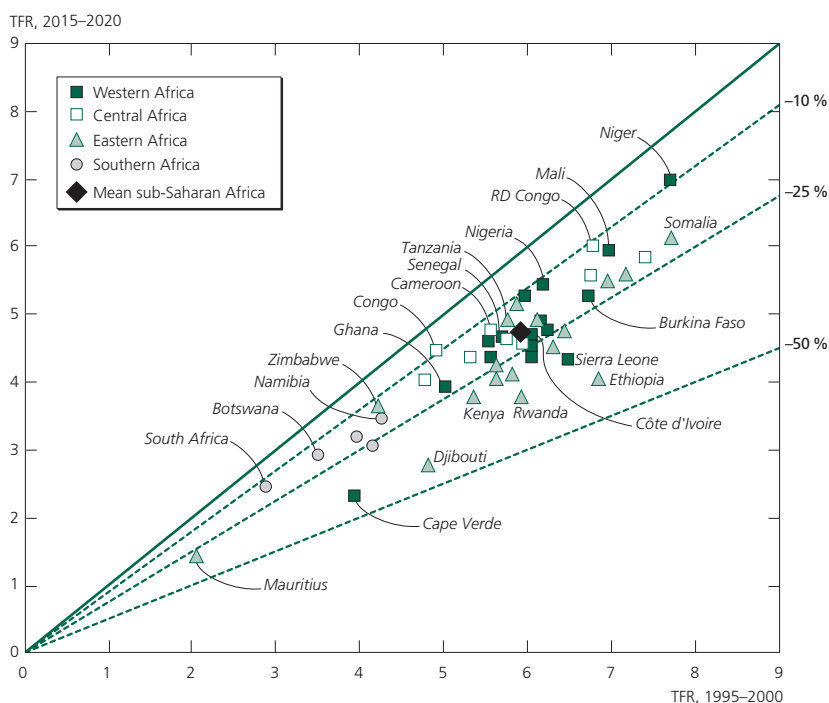
**Sources:** Latest estimates available by region in 2018. For the total fertility rates and adolescent fertility rates: United Nations (2019a); for contraception: United Nations (2019b).

occurred at different rates. In some countries, the decline began only very recently and rather modestly. This is the case in Niger, Chad, and Mali, but also in some larger countries such as Nigeria and DR Congo, where fertility remains high (between 5.0 and 6.0 children per woman) and is declining only slowly (countries with a late and modest decline, Figure 4).

Other countries, such as Senegal, Tanzania, and Côte d'Ivoire, began their transition slightly earlier and have experienced relatively steady declines, with a decrease of about 1.5 children since the early 1990s (countries with steady decline, Figure 4). They are now within the average for Africa (Figure 3). Countries at the forefront of this transition (Figure 4), including Namibia, South Africa, and Zimbabwe, also have lower fertility levels now than in the late 1990s but have experienced a recent and significant slowdown in their transition (Schoumaker, 2019b).<sup>(26)</sup> These slowdowns, the causes of which are

(26) For the most recent period, UN data indicate that the decline in these countries has resumed. A recent analysis of fertility trends based on multiple sources shows, however, that fertility continues to stagnate in several countries, including Zimbabwe and Namibia (Schoumaker, 2019b). It is therefore important to be cautious in interpreting recent trends.

**Figure 3. TFR (mean number of children per woman) from 1995–2000 to 2015–2020 in 47 African countries**



**Interpretation:** From 1995–2000 to 2015–2020, the total fertility rate fell by around 25% in Ghana and by almost 50% in Cape Verde.

**Note:** The lines correspond to the indicated rates of decline.

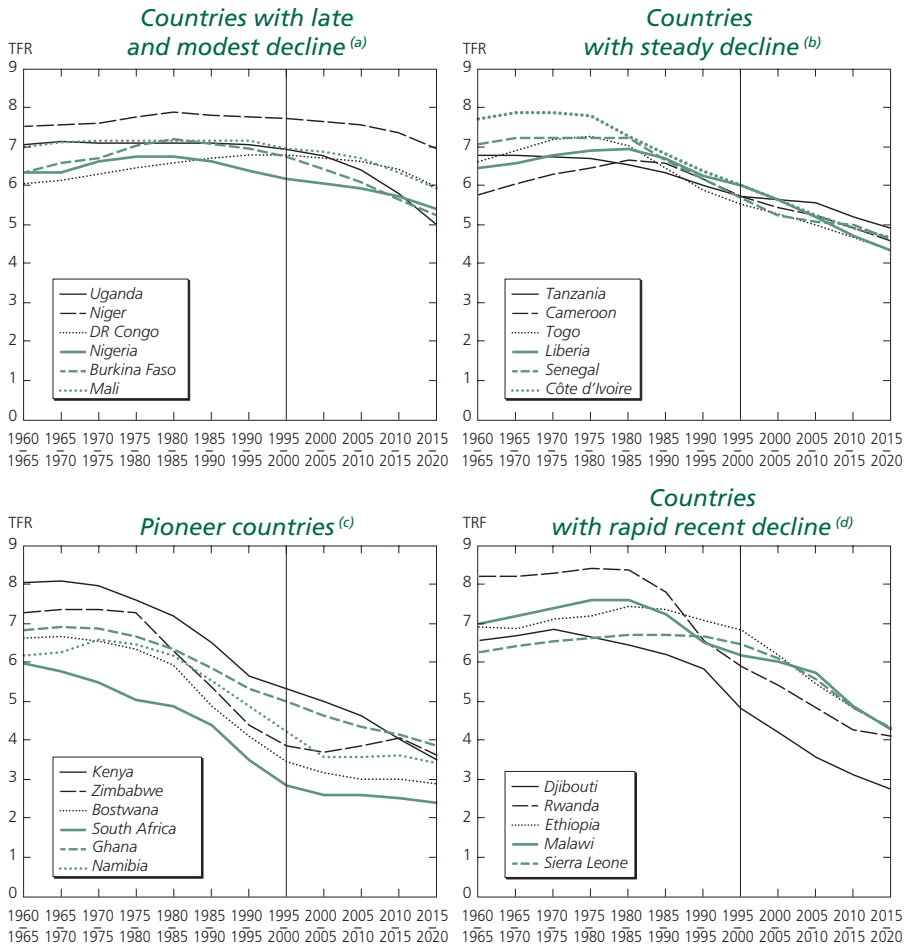
**Source:** United Nations (2019a).

not fully known, are occurring at fertility levels of 3–4 children per woman in Namibia and Zimbabwe, well above the replacement level.

Finally, some countries have experienced significant and sustained fertility declines, sometimes very rapid (countries with recent rapid declines, Figure 4). Rwanda is a good example. While fertility still exceeded 8.0 children per woman in the early 1980s, it fell rapidly from the mid-1990s to below 4.0 children over the period 2015–2020 (Figure 4). Ethiopia has also experienced a fairly rapid decline that, as in Rwanda, can be attributed in part to the intensification of family-planning programmes (Tsui et al., 2017).

Cape Verde, Seychelles, and Mauritius, small island countries, have on average a higher development index than the others, which partly explains their lower fertility. But they still have lower fertility than countries at comparable levels of development. In Mauritius, the rapid decline from the late 1960s onwards was due in part to investment in family-planning programmes and to marriage postponement (Xenos, 1991). However, little in-depth research is available concerning fertility in these islands.

Figure 4. Change in TFR since the 1960s in 23 African countries



(a) Other countries with late and modest decline: Angola, Burundi, Central African Republic, Gambia, Equatorial Guinea, Mozambique, Uganda, Somalia, DR Congo, Chad.

(b) Other countries with steady decline: Comoros, Eritrea, Gabon, Guinea, Guinea-Bissau, Liberia, Madagascar, Mauritania, South Sudan, São Tomé and Príncipe, Tanzania, Zambia.

(c) Other pioneer countries: Mauritius, Lesotho, Eswatini, Cape Verde.

(d) No other countries in this category. Some countries are difficult to classify. In Congo, for example, fertility declined in the 1980s but appears to have stagnated over the last 2 decades.

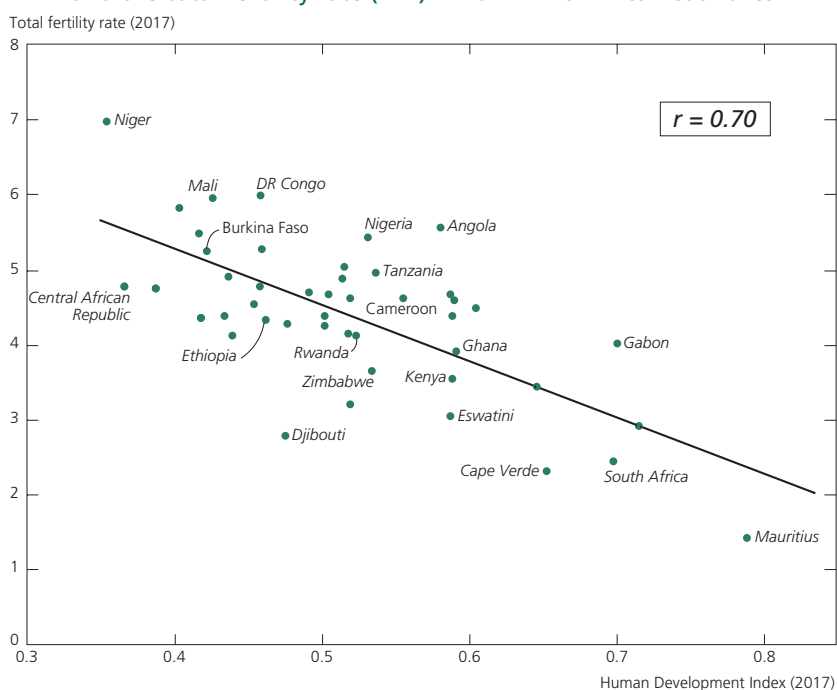
Source: United Nations (2019a).

## 2. Development and fertility: a strong correlation

At the macro level, the factors associated with fertility in sub-Saharan Africa are broadly the same as in other developing regions. On average, fertility is lower in the most urbanized countries, in the most economically and socially advanced countries, and in countries with low

mortality (Bongaarts, 2017). The strong correlation (0.70 in 2017)<sup>(27)</sup> between the TFR and the HDI<sup>(28)</sup> epitomizes the link between development and fertility fairly well (Figure 5). The more developed countries (such as South Africa) clearly have lower fertility levels, and the less developed countries have higher fertility, such as Niger, Mali, and DR Congo (Romaniuk, 2011). Nevertheless, fertility can vary significantly between countries with a similar HDI. Rwanda and Nigeria, for example, have similar HDIs, but fertility is 2.0 children per woman lower in Rwanda than in Nigeria. Niger and the Central African Republic also differ by more than 2.0 children, for comparable HDIs. This imperfect relationship may be partly the result of measurement errors on these variables, but it also indicates the influence of other factors. One is the desired family size: for example, the ideal number of children is almost twice as high in Nigeria (6.5 children) as in Rwanda (3.4 children) according to the latest DHS surveys (Table 7, see p. 198).

**Figure 5. Relationship between the Human Development Index (HDI) and the total fertility rate (TFR) in 2017 in 46 African countries**



**Sources:** United Nations (2019a) for the TFR and UNDP (2018) for the HDI. Only 46 countries are included as the HDI is not available for Somalia.

(27) This correlation has strengthened somewhat since 2001, when it was estimated at 0.62 (Tabutin and Schoumaker, 2004), but has not fundamentally changed.

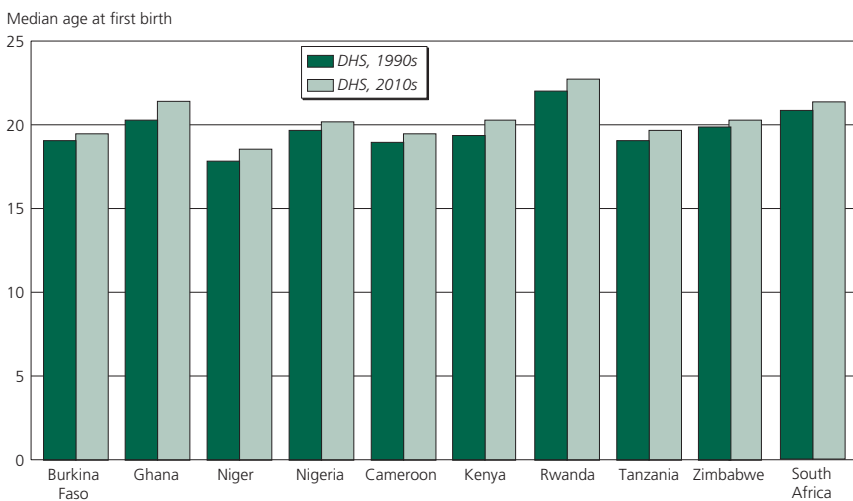
(28) Which combines economic (GDP/capita), educational (literacy and schooling rates), and health (life expectancy at birth) indicators.

While fertility declines overall with economic and social development in Africa as elsewhere, fertility in sub-Saharan Africa is still about a child higher than in countries at comparable levels of development in other regions (Bongaarts, 2017). This ‘Africa effect’ may largely reflect a higher desired number of children than elsewhere and lower contraceptive use.

### 3. Fertility still early but slight changes to timing

Fertility in sub-Saharan Africa is traditionally early (Tabutin and Schoumaker, 2004). The median age at first childbirth, i.e. the age at which half of the women in a generation have already given birth, is often less than 20 years (Kinziunga and Schoumaker, 2018; Appendix Table A.5). In most countries, women enter unions at an early age (Hertrich, 2017) and have their first child quickly. In some countries with later union entry (South Africa and Namibia), out-of-union births are common, and women still have their first child at a relatively young age (Clark et al., 2017). For example, the median age at first childbirth is just over 20 years in South Africa. Although the age at first childbirth has increased slightly over the past 2 decades, the changes remain modest (Figure 6), and births before the age of 20 are common. Another indicator of this early fertility is that adolescent fertility rates (15–19 years) are still high (Appendix Table A.5). By 2018, the rate was about 100 births per 1,000 women aged 15–19 in sub-Saharan Africa versus 60 per 1,000 in Latin America and the Caribbean and just over 30 per 1,000 in South Asia. Although adolescent fertility has declined in recent decades, it is still significantly higher than in other regions of the world (Table 5). Increased education should continue to lower adolescent fertility, but if access to secondary education for

**Figure 6. Change in median age at first birth, women aged 25–49, in 10 African countries**



Sources: Demographic and Health Surveys. See Table 8 for the exact years for each country.

girls does not improve, change may be slow to come in many countries. Better access to contraceptive methods for adolescent girls, especially those unmarried, will also be an important factor in reducing adolescent fertility and induced abortions (Sánchez-Páez and Ortega, 2018).

While the median age at first birth has increased slightly, the mean age at childbirth has decreased slightly. This rejuvenation of the fertility schedule is the result of slightly faster declines in fertility rates at older ages than at younger ages (Figure 7). For the region as a whole, however, the changes in timing are very small. The mean age at childbirth decreased from 29.5 in 1997 to 29.1 in 2017, and the age-specific fertility rate curves have similar shapes at these dates (Figure 7). This relatively similar decline in fertility at different ages is, as suggested by Caldwell et al. (1992), different from that observed in Asia and Latin America, where fertility has declined more rapidly at higher ages. Age-specific fertility changes are not homogeneous across Africa, however, and reflect differences in patterns of onset of childbearing, birth intervals, and fertility stopping behaviours (Casterline and Odden, 2016). In Rwanda, for example, fertility rates have declined rapidly at all ages, including among adolescents, but the declines have been more pronounced beyond age 30,<sup>(29)</sup> as expected with the development of stopping behaviours. This is reflected by a decrease of 1 year in the average age at childbirth. In other countries, such as Cameroon, fertility has declined more at younger ages (before age 30) as a result of delayed onset of childbearing; consequently, the average age at childbirth increased slightly from 28.3 to 28.9. Birth intervals have also lengthened in many African countries, contributing substantially to fertility decline (Moultrie et al., 2012; Timæus and Moultrie, 2013; Casterline and Odden, 2016).<sup>(30)</sup> Intervals are now particularly long in several Southern African countries (median durations of 55 months in South Africa, 45 in Namibia and Lesotho), indicating that fertility transitions in Africa may be very different from those observed in other parts of the world (Moultrie et al., 2012; Hayford and Agadjanian, 2019).

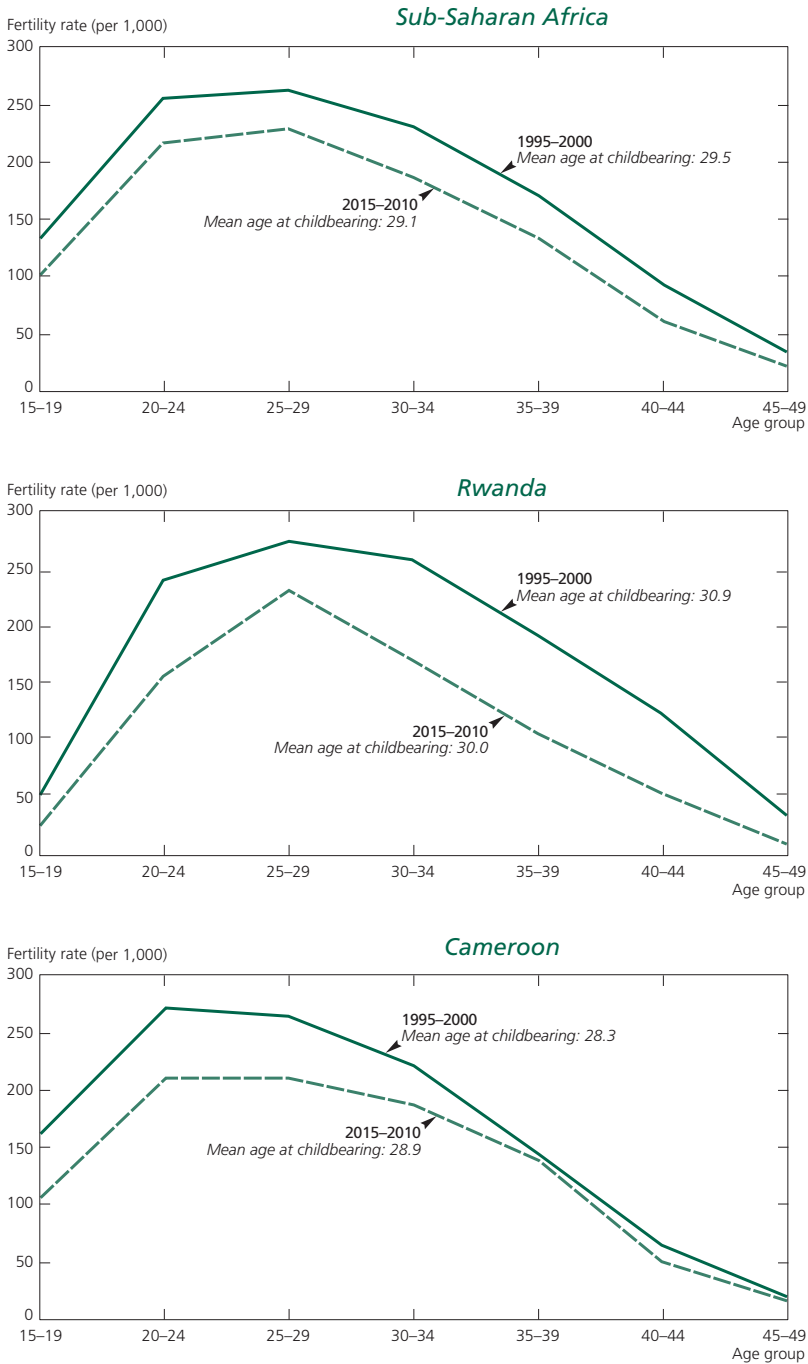
#### 4. Desired number of children remains high and is only slowly decreasing

Sub-Saharan Africa is characterized by a high demand for children, higher than in other regions of the world, even when compared to countries at equivalent levels of economic and social development (Bongaarts, 2017). The ideal number of children per woman is about 1.2 more than in countries of comparable development. This is one of the factors contributing to the high fertility rate (Bongaarts and Casterline, 2013; Leridon, 2015; Bongaarts, 2017), which is decreasing only very slowly. Among the 10 reference countries shown

(29) With a strong increase in contraceptive practice at these ages.

(30) But the intervals are also longer in Sahelian countries, where fertility is stable or declining slowly (Spoorenberg, 2019).

Figure 7. Change in age-specific fertility in sub-Saharan Africa, Rwanda, and Cameroon

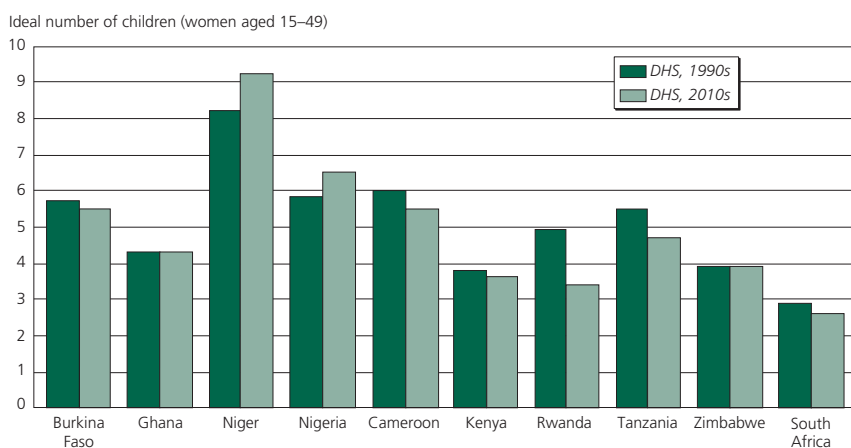


Source: United Nations (2019a).



in Figure 8, the ideal number of children only declined substantially between the 1990s and 2010s in two countries, Tanzania and Rwanda. The decline has been particularly dramatic in Rwanda, where the number of children has fallen from 4.9 to 3.4 in the space of 15 years. This occurred in the context of a proactive family-planning policy, which appears to have had an impact not only on contraceptive practice but also on desired family size (Bongaarts, 2011). In the other countries, we have instead witnessed moderate decreases or stagnation, or even increases, as in Niger and Nigeria. However, this increase should be interpreted with caution, since the proportion of women giving a non-numeric response to the question on preferred number of children has fallen since the 1990s. The socio-economic profile of these women correlates to a high demand for children (Shapiro, 2019). In nearly three-quarters of the countries, the ideal number of children was above 4.0 (Appendix Table A.5), echoing debates in the 1980s and 1990s about the ‘resistance’ of sub-Saharan Africa to dipping below the level of 4.0 children per woman (Lesthaeghe, 1989b; Cohen, 1998; Casterline and Bongaarts, 2017). The close association between demand for children and fertility suggests that overall behavioural change may be relatively slow in the coming years.

**Figure 8. Changes in mean ideal number of children in 10 African countries**



Sources: Demographic and Health Surveys.

## 5. Education, place of residence, and standard of living

Female fertility is far from homogeneous within sub-Saharan countries and is strongly associated with level of education, as shown by numerous studies (Jejeebhoy, 1995; Tabutin and Schoumaker, 2004; Bongaarts, 2010; Shapiro, 2012, 2017; Schoumaker, 2017a). Fertility rates are lower among women who have reached primary-school level than among women with no education, but it is from secondary school onwards in particular that the number of children per woman declines significantly (Shapiro, 2012). In the 10 countries

in Table 6, the most highly educated women often have two to three fewer children than women with no education. Fertility rates among the ‘richest’ women are also significantly lower than among the poorest, often by around three children. Finally, urban women everywhere have lower fertility rates than rural women, as shown by all DHS surveys.

There are various reasons for these differences in fertility rates between social groups and regions of residence. Women’s education is one of the most

**Table 6. Changes in fertility<sup>(a)</sup> from the 1990s to the 2010s by selected women’s characteristics, 10 African countries**

Country and DHS survey date		Total	Place of residence		Education			Household standard of living <sup>(b)</sup>		
			Urban	Rural	None	Primary	Secondary or above	Lowest	Median	Highest
Burkina Faso	1993	6.5	4.6	7.0	6.8	5.6	3.1	7.5	7.1	4.6
	2010	6.0	3.9	6.7	6.6	4.9	3.1	7.1	6.7	3.7
	Change (%)	-8	-15	-4	-3	-13	0	-5	-6	-20
Ghana	1998	4.4	3.0	5.3	5.7	5.0	3.5	6.1	5.1	2.4
	2014	4.2	3.4	5.1	5.9	4.9	3.6	6.1	4.2	2.9
	Change (%)	-5	+13	-4	+4	-2	+3	0	-18	+21
Niger	1998	7.2	5.6	7.6	7.5	6.2	4.8	8.4	7.8	5.7
	2012	7.6	5.6	8.1	8.0	7.0	4.9	8.2	8.0	6.1
	Change (%)	+6	0	+7	+7%	+13	+2	-2	+3	+7
Nigeria	1990	6.0	5.0	6.3	6.5	6.3	4.4	6.6	5.9	4.7
	2013	5.5	4.7	6.2	6.9	6.1	4.2	7.0	5.7	3.9
	Change (%)	-8	-6	-2	+6	-3	-5	+6	-3	-17
Cameroon	1998	4.8	3.8	5.4	6.1	5.0	3.6	5.9	5.0	3.6
	2011	5.1	4.0	6.4	6.8	5.9	3.8	7.0	5.6	3.3
	Change (%)	+6	+5	+19	+11	+18	+6	+19	+12	-8
Kenya	1998	4.7	3.1	5.2	5.8	5.0	3.5	6.5	4.7	3.0
	2014	3.9	3.1	4.5	6.5	4.4	3.0	6.4	3.8	2.8
	Change (%)	-17	0	-13	+12	-12	-14	-2	-19	-7
Rwanda	2000	5.8	5.2	5.9	6.2	5.8	4.9	6.0	5.9	5.4
	2015	4.2	3.6	4.3	5.1	4.5	3.0	5.1	4.1	3.3
	Change (%)	-28	-31	-27	-18	-22	-39	-15	-31	-39
Tanzania	1996	5.8	4.1	6.3	6.4	5.6	3.2	7.8	6.4	3.9
	2016	5.2	3.8	6.0	6.9	5.4	3.6	7.5	5.7	3.1
	Change (%)	-10	-7	-5	+8	-4	+13	-4	-11	-21
Zimbabwe	1999	4.0	3.0	4.6	5.2	4.5	3.3	4.9	4.5	2.6
	2015	4.0	3.0	4.7	4.7	5.0	3.7	5.6	4.5	2.4
	Change (%)	0	0	+2	-10	+11	+12	+14	0	-8
South Africa	1998	2.9	2.3	3.9	4.5	3.7	2.5	4.8	2.7	1.9
	2016	2.6	2.4	3.1	2.8	3.4	2.6	3.1	2.7	2.1
	Change (%)	-10	+4	-21	-38	-8	+4	-35	0	+11

(a) Total fertility rate, i.e. mean number of children per woman aged 15–49, calculated over the 3 years preceding the survey.

(b) 1st (lowest), 3rd (medium) and 5th (highest) quintile of wealth. Since the late 1990s, DHS/MICS survey data can be used to estimate an ‘indicator of household economic wellbeing’ based on the various goods owned by the household and certain dwelling characteristics. It is a proxy of standard of living or degree of economic poverty.

Sources: Demographic and Health Surveys.

important determinants of fertility, via multiple mechanisms: later union entry, lower demand for children, a higher opportunity cost of maternal labour, a better degree of information and better access to contraception, etc. (Shapiro, 2012). Women's standard of living is also a typical determinant of fertility. Among the poorest women, fertility rates tend to be higher for various reasons: demand for children is related to security in old age, the economic contribution of child labour, less knowledge and poorer access to contraception, higher child mortality, etc. (Schoumaker, 2004). These mechanisms are in part the same as those explaining the influence of education and fertility rate differences between urban and rural environments of residence. Nevertheless, although these variables (education, standard of living, and place of residence) are correlated (the least educated women are on average poorer than the most educated) and some of their effects are the same, they also have their own influences (Schoumaker, 2004). For example, even among the poorest women, those with more education very often have lower fertility rates than those with less education.

Changes within social groups and according to place of residence vary greatly from one country to another (Table 6). In Nigeria, the decline in the fertility rate relates mostly to urban women, with secondary education or higher, and belonging to the richest quintile. In Rwanda, changes were also more pronounced (in relative terms) among the most advantaged women, but the poorest and least educated women also experienced a substantial decline in fertility rates. In other countries (e.g., Ghana and Kenya), the decline has been more pronounced for women in the medium category of standard of living. In South Africa, it is concentrated among rural women with little education and a low standard of living. Fertility is also increasing in some groups and sometimes even nationally. It is difficult to generalize these results to the whole of Africa or to extract a simplified pattern from them. But this illustrates that fertility decline can affect all social groups, especially in countries in late transition (South Africa) or where demographic and health changes are swift (Rwanda), especially as a result of health and family-planning policies.

Fertility rates may remain high among the most advantaged groups in some contexts. For example, in Nigeria, the most educated women and urban women have more than 4.0 children on average, and women in the richest quintile have approximately 4.0 children. In Niger, the average rate among the most highly educated women is almost 5.0 children per woman. Outside countries where fertility rates are already low, such as South Africa, fertility rates among urban, educated, or richest quintile women remain higher than 3.0 children per woman in many cases. Table 7 shows that the demand for children is lower among urban and educated women and those with a high standard of living. Nevertheless, the ideal number of children remains high in these more advantaged groups (between 3.0 and 4.0 children, except in South Africa, where it is much lower), partly explaining the relatively high fertility rates.

**Table 7. Changes in mean ideal number of children, 1990s–2010s, by selected characteristics of women aged 15–49, 10 African countries**

Country and DHS survey date	Total	Place of residence		Education			Household standard of living <sup>(a)</sup>		
		Urban	Rural	None	Primary	Secondary or above	Lowest	Median	Highest
Burkina Faso 1993	5.7	4.3	6.2	6.1	4.6	3.6	6.6	6.6	4.4
2010	5.5	4.3	6.0	6.0	4.7	3.7	6.6	5.8	4.3
Change (%)	–4	0	–3	–2	+2	+3	0	–12	–2
Ghana 1998	4.3	3.7	4.6	5.4	4.2	3.7	5.3	4.2	3.5
2014	4.3	4.0	4.7	5.7	4.6	3.9	5.5	4.2	3.7
Change (%)	0	+8	+2	+6	+10	+5	+4	0	+6
Niger 1998	8.2	6.3	8.7	8.6	6.8	5.2	9.0	8.6	6.4
2012	9.2	7.4	9.6	9.6	8.3	6.6	9.7	9.8	7.8
Change (%)	+12	+17	+10	+12	+22	+27	+8	+14	+22
Nigeria 1990	5.8	5.0	6.3	6.9	5.9	4.8	6.5	6.4	5.0
2013	6.5	5.6	7.2	8.6	6.5	5.0	8.7	6.6	4.7
Change (%)	+12	+12	+14	+25	+10	+4	+34	+3	–6
Cameroon 1998	6.0	5.1	6.6	8.0	6.2	4.8	7.4	6.2	4.9
2011	5.5	4.8	6.4	7.7	6.0	4.5	7.5	5.6	4.3
Change (%)	–8	–6	–3	–4	–3	–6	+1	–10	–12
Kenya 1998	3.8	3.2	4.0	5.2	3.9	3.2	4.7	3.9	3.1
2014	3.6	3.2	3.9	7.0	3.7	3.0	5.1	3.5	3.1
Change (%)	–5	0	–3	+35	–5	–6	+9	–10	0
Rwanda 2000	4.9	4.3	5.0	5.2	4.9	4.1	5.1	5.1	4.4
2015	3.4	3.3	3.4	3.9	3.4	3.0	3.4	3.4	3.3
Change (%)	–31	–23	–32	–25	–31	–27	–33	–33	–25
Tanzania 1996	5.5	4.5	5.8	6.8	5.1	4.0	6.3	5.7	4.3
2016	4.7	3.9	5.2	6.2	4.8	3.7	5.8	5.1	3.7
Change (%)	–15	–13	–10	–9	–6	–8	–8	–11	–14
Zimbabwe 1999	3.9	3.2	4.4	5.7	4.6	3.3	4.7	4.3	3.1
2015	3.9	3.4	4.3	6.3	4.7	3.6	4.8	4.1	3.3
Change (%)	0	+6	–2	+11	+2	+9	+2	–5	+6
South Africa 1998	2.9	2.6	3.3	4.3	3.3	2.6	3.5	2.8	2.4
2016	2.6	2.5	2.8	3.3	2.9	2.6	2.7	2.6	2.4
Change (%)	–10	–4	–15	–23	–12	0	–23	–7	0

(a) 1st (lowest), 3rd (medium) and 5th (highest) quintile of wealth. Since the late 1990s, DHS/MICS survey data can be used to estimate an ‘indicator of household economic well-being’ based on the various goods owned by the household and certain dwelling characteristics. It is a proxy of standard of living or degree of economic poverty.

**Sources:** Demographic and Health Surveys.

## 6. Use of contraception increasing

Since the late 1990s, contraceptive use has increased significantly in sub-Saharan Africa (Cleland et al., 2011; Garenne, 2014). The prevalence of contraception (modern methods), which 20 years ago was just over 10%, was estimated at 27% in 2017 (Table 5). It remains well below that of other regions of the world, where it is between 50% and 80%, but in both relative and absolute terms Africa has seen the most rapid growth in contraceptive use over the past 20 years (Appendix Table A.4). This increase has contributed to the decline in fertility. However, the

correlation between the proportion of women using modern contraception and fertility is far from perfect (Choi et al., 2018), and equivalent fertility levels may be associated with very different prevalence of contraceptive use (Appendix Table A.4). For example, prevalence is about 30% in Ghana and nearly 70% in Zimbabwe, two countries with an average fertility rate of about 4.0 children per woman.

These changes in contraceptive practice, which have accelerated since 2005, are partly the result of international family-planning programmes involving public and private actors (Tsui et al., 2017).<sup>(31)</sup> International donors have supported the financing of implants in particular, the use of which is now increasing sharply and which are, along with injectables,<sup>(32)</sup> among the most frequently used methods in Africa (Lesthaeghe, 2014; Staveteig et al., 2015; Tsui et al., 2017). In Rwanda and Kenya, for example, according to the latest DHS surveys, half of all contraceptive users use injectables, and 15%–20% use implants. These methods, which have a long-lasting effect (up to 3 months for injectables and 3–5 years for implants), are being promoted especially to reduce the risk of contraceptive discontinuation, rates of which are high in sub-Saharan Africa (Castle and Askew, 2015; Staveteig et al., 2015; Izugbara et al., 2018).

In most countries, contraceptive use is more common in urban areas among educated women with higher living standards (Table 8).<sup>(33)</sup> Nevertheless, in some countries (such as Tanzania, Zimbabwe, and Rwanda), contraceptive use has increased much more quickly among rural, less educated, and poorer women, probably partly due to targeted action programmes (Izugbara et al., 2018). Disparities between social groups or environments of residence have, as such, been significantly reduced and sometimes even reversed (as in Ghana). In Tanzania, contraceptive prevalence among less educated women increased from 5% to 24% over 2 decades, while it changed little among the most educated women (from 31% to 33%). Two-thirds of this increase in contraceptive practice among less educated women is due to the increase in injectables and implants. In these countries, therefore, fertility gaps between social groups can be expected to narrow in the coming years.

## 7. Reduced postpartum infertility periods

Part of the reason that increased contraceptive use does not always translate into a marked decline in fertility is that the period of postpartum insusceptibility<sup>(34)</sup> is getting shorter (Figure 9). In many sub-Saharan countries, it declined by

(31) The London Summit on Family Planning in 2012 gave rise to the Family Planning 2020 movement, which involves 69 developing countries (36 of which are in sub-Saharan Africa) and brings together private and public actors (NGOs, governments, foundations, and funding agencies) to develop the supply and use of contraception (<https://www.familyplanning2020.org/>).

(32) Contraceptive methods administered by injection.

(33) See, for example, Gourbin et al. (2017).

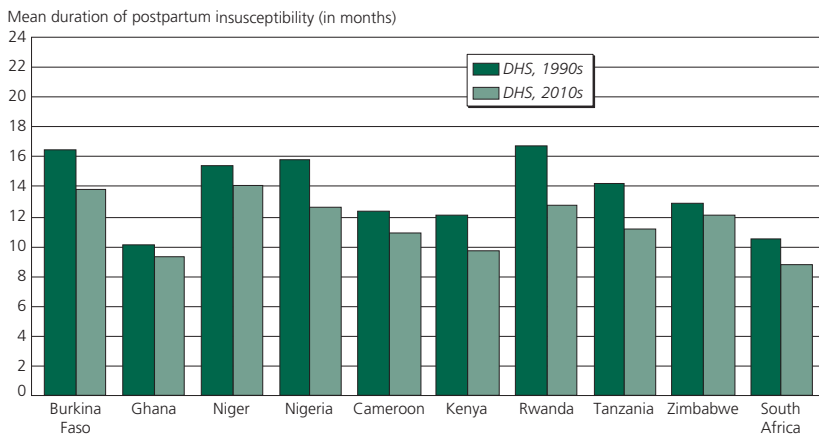
(34) This period, also known as the postpartum infertility period, is the time following childbirth during which conception is not possible, due to the absence of either sexual intercourse (postpartum abstinence) or of ovulation. Duration of insusceptibility is, at the individual level, measured by the duration of postpartum amenorrhoea (which is influenced by the duration of breastfeeding) or by the duration of postpartum abstinence, where longer.

**Table 8. Changes in modern contraceptive prevalence from the 1990s to the 2010s by selected characteristics of women aged 15–49, 10 African countries**

Country and DHS survey year		Total	Place of residence		Education			Standard of living		
			Urban	Rural	None	Primary	Secondary or above	Lowest	Median	Highest
Burkina Faso	1993	4.2	17.1	1.5	1.9	12.7	31.6	0.8	1.0	16.4
	2010	15.0	30.8	10.8	11.2	25.2	44.2	7.1	9.7	33.6
Ghana	1998	13.3	17.4	11.4	8.9	12.9	16.8	7.8	13.8	18.0
	2014	22.2	19.8	24.6	17.4	26.8	23.1	21.2	24.0	19.5
Niger	1998	4.6	18.6	2.1	3.0	13.0	32.4	0.8	2.2	18.1
	2012	12.2	27.0	9.7	10.4	18.4	30.0	8.7	8.3	23.7
Nigeria	1990	3.5	9.6	1.9	1.3	5.4	13.7	0.5	1.7	12.2
	2013	9.8	16.9	5.7	1.7	13.6	19.5	0.9	9.1	23.4
Cameroon	1998	7.1	13.1	4.5	1.8	7.4	14.4	1.4	6.1	16.6
	2011	14.4	20.8	8.7	3.3	12.5	25.1	2.4	13.8	25.7
Kenya	1998	31.5	41.0	29.0	16.1	28.2	46.3	12.6	30.7	50.1
	2014	53.2	56.9	50.9	15.3	55.7	59.0	29.2	59.5	57.7
Rwanda	2000	5.7	16.1	3.9	3.2	4.8	18.8	2.4	3.5	14.6
	2015	47.5	51.1	46.7	40.7	48.8	49.1	44.9	48.1	50.0
Tanzania	1996	13.3	26.6	9.8	5.2	16.6	31.2	4.9	10.0	28.9
	2016	32.0	35.2	30.6	24.2	34.0	33.2	20.3	35.8	35.4
Zimbabwe	1999	50.4	61.8	43.9	35.2	44.4	59.3	41.1	42.8	67.4
	2015	65.8	70.7	63.2	49.3	60.7	68.3	61.8	63.1	72.3
South Africa	1998	55.1	62.8	43.7	30.4	46.3	63.6	34.0	54.5	70.3
	2016	54.0	54.6	52.5	29.6	42.0	56.3	53.6	53.3	55.1

**Note:** Proportion of women in unions using modern contraceptive methods (defined in Table 5).  
**Sources:** Demographic and Health Surveys.

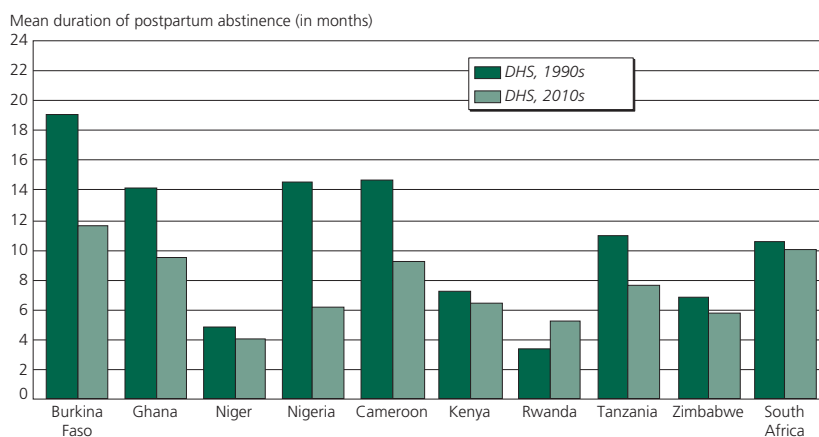
**Figure 9. Change in duration of postpartum insusceptibility in 10 African countries**



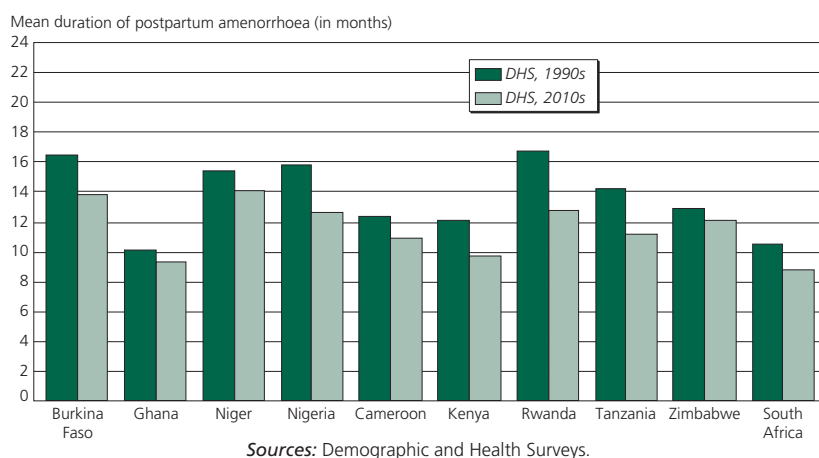
2–6 months from the 1990s to 2010s and is now between 12 and 16 months (Figure 9).<sup>(35)</sup> As the duration of insusceptibility has decreased more in countries where it was particularly long, differences between countries are now more moderate than in the past (Figure 9). This reduction is mainly due to a shortening of the duration of postpartum sexual abstinence (Figure 10) but also, to a lesser extent, to a reduction in the duration of breastfeeding and amenorrhoea (Figure 11).

These periods of abstinence and breastfeeding, traditionally long and common in sub-Saharan Africa (Page and Lesthaeghe, 1981; Tabutin and

**Figure 10. Change in duration of postpartum abstinence in 10 African countries**



**Figure 11. Change in duration of postpartum amenorrhoea in 10 African countries**



(35) It is sometimes much longer, as in Guinea (22 months in 2012). Outside Africa, it is generally shorter, often less than 10 months.

Schoumaker, 2004), for a long time contributed to limiting fertility rates. Conversely, the shortening of these periods promotes higher fertility rates. For example, it is estimated that a 3-month reduction in insusceptibility, as observed in many countries, has the same impact on fertility rates as a 5%–6% reduction in contraceptive prevalence.<sup>(36)</sup> If this decline in postpartum insusceptibility continues, further fertility decline will require a greater increase in contraceptive practice.

## 8. Frequent and unsafe induced abortions

As Guillaume and Rossier (2018) pointed out, abortion remains illegal in most sub-Saharan countries, and little has changed in legislation since independence.<sup>(37)</sup> Nevertheless, abortion is widely practised in Africa. Although we do not have precise knowledge of the extent of the phenomenon, existing estimates indicate that abortion rates are within the global average. Around 2012, it was estimated at 34 abortions per 1,000 women aged 15–44, approximately the same in all four subregions, but had not declined since 1992 (unlike in Asia and Europe), reflecting unmet needs for contraception. This rate is about one-fifth of the general fertility rate (number of births per 1,000 women per year). In other words, there is, on average, about one abortion for every five live births in Africa. A large proportion of these abortions take place in unsafe conditions, exposing African women to much higher health risks than in other parts of the world (Guillaume and Rossier, 2018).

## 9. What about male fertility?

We are accustomed to characterizing fertility through the experience of women. This is partly due to more readily available and better quality data for women than for men. While in many countries of the world the average number of children per woman is not significantly different from the number of children per man, this is not the case in sub-Saharan Africa. Men often have significantly higher fertility rates than women, especially in countries where age differences between spouses are large and where polygamy and marital instability are common (Donadjé and Tabutin, 1994; Schoumaker, 2019a). For example, in Senegal around 2010, the TFR for men (11.0 children) was twice that of women (5.5 children); across the whole continent, the male fertility rate is often about 50% higher than the female fertility rate, and men have their children on average 10 years later than women (Schoumaker, 2019a). These disparities between male and female fertility rates constitute one indicator of the sexes'

(36) This estimate is based on the model by Bongaarts (2015), which estimates the impact of postpartum insusceptibility duration on fertility and compares it to that of contraceptive prevalence.

(37) In 2017, only five sub-Saharan countries (Cape Verde, South Africa, Mozambique, São Tomé and Príncipe, and Angola), representing 9% of African women of childbearing age, allowed abortion at the request of women during the first trimester of pregnancy. It is permitted in 11 countries when a woman's life is in danger. It is completely prohibited in nine countries and subject to various conditions in the others (Guillaume and Rossier, 2018).



very different reproductive and marital experiences in Africa (Hertrich, 2017). Men usually show a much higher demand for children than women do. While fertility rates among men and women can be expected to converge over time,<sup>(38)</sup> male fertility is expected to remain much higher than female fertility over the next few decades (Schoumaker, 2019a).

## VI. Mortality

Mortality declined overall in low- and medium-income countries in the 2000s and 2010s, despite differences between regions and between countries (Tabutin and Masquelier, 2017). Where does sub-Saharan Africa stand in relation to other regions? Are the gaps between the continent's subregions and countries in terms of life expectancy and child mortality lessening? What about AIDS, maternal deaths, and the epidemiological transition? Has recent progress in health had an impact on social inequalities?

As with fertility, we have based our analysis on the most recent UN data (2019a) for trends and the DHS surveys (1990s and 2010s) of 10 countries for changes in social inequalities (by place of residence, education, and standard of living).<sup>(39)</sup> Appendix Table A.6 shows UNPD estimates of life expectancy and child mortality (ages 0–5) by period, from 1960–1965 to 2015–2020, in 47 countries. Appendix Table A.7 (mothers' and children's health indicators in the DHS surveys from the 2010s) gives the data for 39 countries on neonatal mortality (under 1 month of age), infant and child mortality (0–5), as well as childbirth conditions and child health (vaccination, stunting), in the 2010s.

### 1. Significant progress despite persistent inequalities

Table 9 shows trends over the past 20 years<sup>(40)</sup> in life expectancy, maternal mortality, and child mortality in the world's major developing regions and the four sub-Saharan subregions. Overall, much progress has been made. It is in sub-Saharan Africa that life expectancy has increased the most, with an average increase of 11 years between 1997 and 2017 (ranging from 5 years in Southern Africa to 15 in Eastern Africa) compared to 6.7 for the world and 7.0 for the developing countries as a whole. These differences in absolute gain have slightly reduced spatial inequalities between these large geographical areas, but we are still a long way from any real convergence. With a life expectancy at birth (LEB) of 60.5 years

(38) Large differences in fertility rates between men and women are produced by a combination of a young age pyramid and wide age gaps between husbands and wives. By changing the shape of the age pyramid, the demographic transition also reduces the difference in fertility rates between men and women, although age gaps between spouses remain large (Schoumaker, 2019a).

(39) Bearing in mind the difficulty of measuring overall mortality, mortality by age group, and causes of death in a region where very few countries have a full civil register. On these issues of sources and methodology in low- and medium-income countries, see Tabutin and Masquelier (2017), for example.

(40) The United Nations provide data by 5-year period (1995–2000, 2005–2010, 2015–2020); we have centred the results on the midpoints: 1997, 2007, and 2017.

in 2017, sub-Saharan Africa is lagging 9 years behind South Asia, 12 behind North Africa, 15 behind Latin America, and 17 behind East Asia. And there is still a 6-year gap between Western Africa (LEB of 57 years) and Eastern and Southern Africa (LEB of 63 years), as against 10 years in 1997.

**Table 9. Life expectancy at birth, maternal mortality, and child mortality at different dates by subregions of Africa and the world**

Subregion	Life expectancy at birth (both sexes, in years)				Maternal death rate <sup>(a)</sup> (per 100,000)			Probability of dying between ages 0 and 5 <sup>(b)</sup> (per 1,000)			
	1997	2007	2017	Gain in years 1997 – 2017	1995	2015	Change 1995 – 2015 (%)	1997	2007	2017	Change 1997 – 2017 (%)
Western Africa	48.4	52.6	57.3	8.9	1050	675	–35	187	132	91	–51
Central Africa	48.5	53.9	59.4	11.8	978	650	–33	186	135	96	–48
Eastern Africa	49.2	56.1	64.2	15.0	906	424	–53	150	94	60	–60
Southern Africa	58.2	54.0	63.3	5.1	115	167	45	70	70	39	–44
Sub-Saharan Africa	49.4	54.0	60.5	11.1	928	546	–41	166	115	78	–53
North Africa	66.4	69.8	72.3	5.9	141	70	–50	63	43	31	–51
East Asia	71.7	74.9	77.8	6.1	71	27	–62	40	20	11	–73
South Asia	62.0	65.9	69.4	7.4	461	176	–62	99	67	44	–56
Southeast Asia	66.7	69.6	72.5	5.8	241	110	–54	53	36	25	–51
Latin America	70.3	73.5	75.6	5.3	107	60	–44	38	23	17	–55
Developing countries	63.7	67.1	70.7	7.0	409	239	–42	90	63	44	–51
World	65.6	68.9	72.3	6.7	369	216	–41	82	57	40	–51

(a) Maternal deaths per 100,000 live births. These rates should be viewed with particular caution as maternal mortality is difficult to estimate. The WHO always presents them with large confidence intervals.  
(b) Probability per 1,000 live births of dying before reaching fifth birthday.  
**Sources:** Latest estimates available by region in 2019. United Nations (2019a) for life expectancy and child mortality; WHO et al. (2015) for maternal mortality.

Life expectancy in African countries is increasing, even in the poorest countries, but without any real spatial convergence. There are still major inequalities between countries (Appendix Table A.6). In 2017, there was a gap of almost 13 years between countries such as Côte d'Ivoire, Chad, and Nigeria (LEB of about 54 years, among the lowest in the world), and Senegal, Ethiopia, and Rwanda (about 68 years). In the countries hardest hit by AIDS (mainly in Southern Africa), after falling spectacularly, life expectancies have caught up with their 1990 levels or outstripped them. Life expectancy has also risen sharply in Rwanda since the mid-1990s.

The rise in life expectancy is largely due to the substantial drop in child mortality rates, including in the poorest countries and subregions, where healthcare provision is weak (Tabutin and Masquelier, 2017). Child mortality has been falling faster since 2005; in 20 years, it fell by 53% in Africa and 51% worldwide.

In Nigeria, Burkina Faso, and other high-mortality countries, declining under-5 mortality rates accounted for nearly 75% of the increase in life expectancy between 1990 and 2015 (Tabutin and Masquelier, 2017). Under-5 mortality in sub-Saharan Africa fell from 166 deaths per 1,000 births in 1997 to 78 per 1,000 in 2017. Even so, these improvements have not been enough to achieve the admittedly ambitious Millennium Development Goal (MDG) of a two-thirds reduction in under-5 mortality between 1990 and 2015. Sub-Saharan Africa is still the region where children are at greatest risk. A newborn there is 8 times more likely to die before the age of 5 than in East Asia, and twice as likely as in India.

With maternal death rates<sup>(41)</sup> too, the progress made has not been enough to achieve the MDG, which was a 75% decrease worldwide between 1990 and 2015. According to UN data, the drop was only 48%. Sub-Saharan Africa has made progress overall (maternal mortality fell by 41%)<sup>(42)</sup> but no faster than the other regions (Table 9). Today, this region accounts for two-thirds of the world's maternal deaths each year; it is still the highest-risk region for women (WHO, 2018b). The causes of progress are widespread improvements in antenatal care, medical assistance at birth, and a reduction in home births (WHO, 2015; Rutstein et al., 2016).

## 2. Life expectancy on the rise again

In the 1990s, improvements in life expectancy in Africa slowed down or even stalled (in 7 countries out of 48), actually reversing in some 20 countries, as a result of economic, political, and public health crises (Tabutin and Schoumaker, 2004). Over the past 15 years, there has been visible improvement again.

Figure 12, based on the most recent and reliable UN data (2019a) for a sample of 18 countries, shows the improvements since 2000 or 2005 and the diverse pattern of health histories since 1960.

If the latest UN data (2019a) are to be trusted,<sup>(43)</sup> in Africa women enjoy a better life expectancy than men; the figures show a mean gender gap of 3.5 years,<sup>(44)</sup> which has scarcely changed since the 1990s. As to social inequalities, at present no country in Africa has mortality tables by place of residence, region, or social group that could be used to measure social inequality with precision.

## 3. Child mortality falling fast

In Africa as elsewhere, mortality rates are best documented, by far, among children aged 0–5, whether in terms of levels, trends, or determinants. This

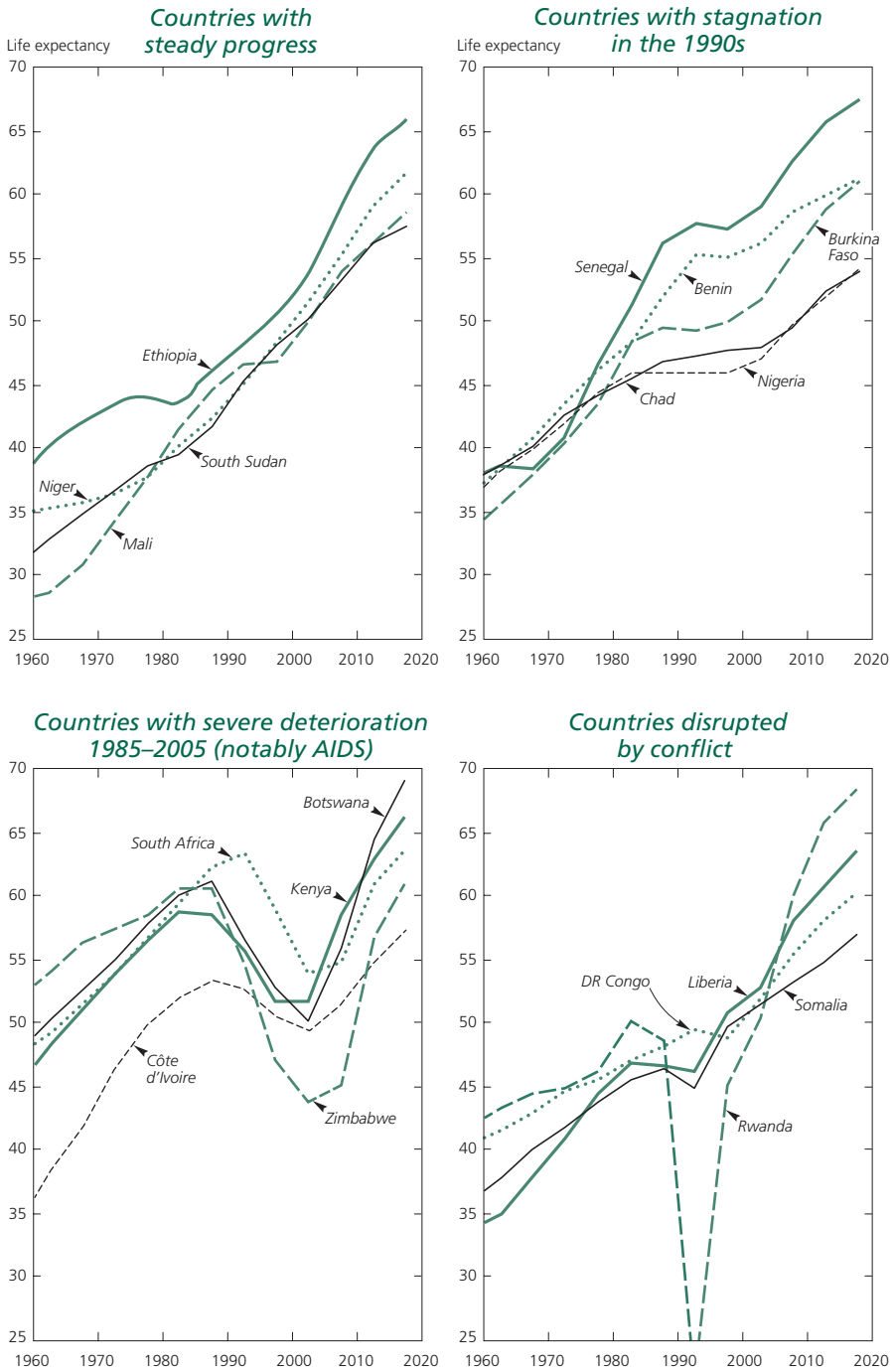
(41) Maternal death is the death of a woman while pregnant or within 42 days of termination of the pregnancy, regardless of its duration.

(42) Southern Africa excluded because of AIDS.

(43) The UNPD's estimates for life expectancy by sex should be viewed with caution, as they are based on models and assumptions where high-quality direct data are lacking.

(44) Compared to 6.4 in Latin America, 4.0 in Northern Africa, 6.0 in South-Eastern Asia, and 5.1 in Western Asia.

Figure 12. The diversity of African mortality transitions over the last 50 years



Source: United Nations (2019a).

is thanks to the high quality of the data collected from mothers over the past 30 years by the DHS and MICS surveys. Under-5 mortality is still regarded as one of the best indicators of social development and health inequalities. Given the high levels recorded in the 1990s and 2000s and the weight of its impact on life expectancy, research programmes<sup>(45)</sup> and action plans pay a lot of attention to it. The drop in infant and child mortality was one of the priorities of the MDGs (MDG 4),<sup>(46)</sup> as it is now of the Sustainable Development Goals for 2015–2030.<sup>(47)</sup> The 2000s and 2010s produced numerous publications and some major international overviews that included data on sub-Saharan Africa (Houweling and Kunst, 2010; United Nations, 2013; UN IGME, 2017; Mejía et al., 2019).

Figure 13 shows the rates of decline in under-5 mortality for 1995–2000 and 2015–2020 in 47 sub-Saharan African countries. It shows both the diversity of situations and the progress achieved in the space of 20 years. Overall progress is considerable, with reductions of 40%–60% in most countries, though the full range is between 25% and 60% with no clear relationship with subregion or with the country's level in 1997. The disparities from the 1980s and 1990s (Tabutin and Schoumaker, 2004) have somewhat narrowed. In the 1990s, between country groups at opposite ends of the scale, the probability of dying before age 5 ranged between 250 per 1,000 or more (around 1 child in 4 dying before his or her fifth birthday) in Mali, Sierra Leone, Niger, and South Sudan, and fewer than 60 per 1,000, or less than 1 in 16, in Mauritius, South Africa, Cape Verde, and Botswana. The range today is between approximately 120–130 per 1,000 (more than 1 child in 8) in Central African Republic, Chad, and Somalia and fewer than 50 per 1,000 (fewer than 1 in 20) in Cape Verde, Mauritius, Botswana, Kenya, Rwanda, and South Africa (UN IGME, 2017; Appendix Table A.7).<sup>(48)</sup> The absolute number of deaths of African children aged under 5 fell markedly in 25 years (from 3.9 million per year in 1990 to 2.9 million in 2016), but as a proportion of the world total they increased because although the probability of dying decreased, the number of children was growing fast. For under-5s, the proportion was 31% in 1990 and 51% in 2016; for children aged 5–14, it rose from 36% to 55% (UN IGME, 2017). The region is making progress in terms of probabilities but accounts for an increasingly high proportion of the child deaths occurring in the world.

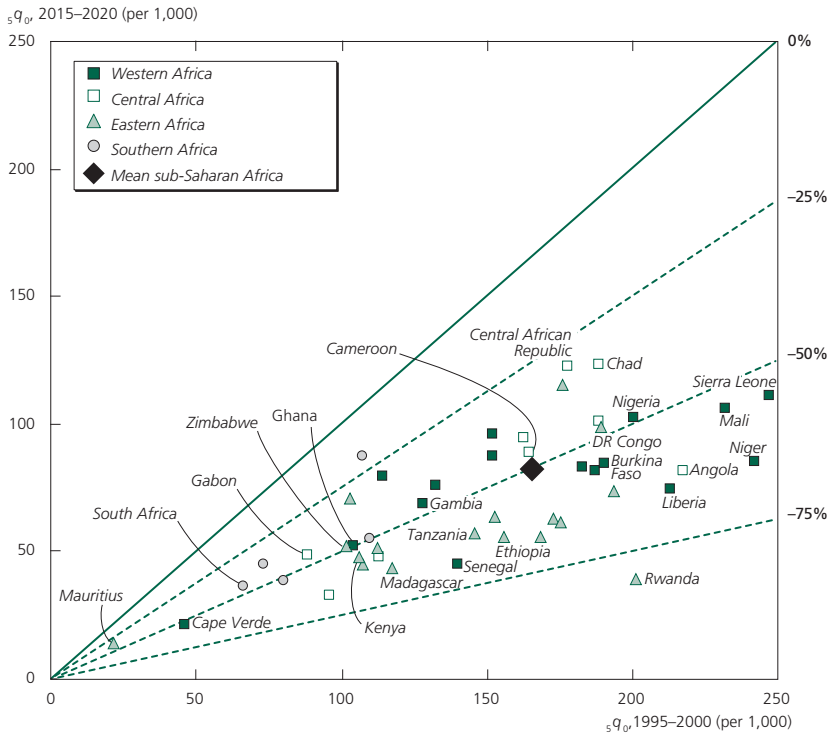
(45) For example, in 2004, UNICEF, the WHO, the World Bank, and the United Nations set up the UN Inter-Agency Group for Child Mortality Estimation (UN IGME), which brings together international experts tasked with measuring and tracking trends in mortality among children aged 0–14 around the world.

(46) An ambitious goal of a two-thirds reduction in child mortality between 1991 and 2015, which only 24 of the world's low- and lower-intermediate-income countries out of 78 managed to achieve.

(47) This goal also seems quite ambitious: to bring under-5 child mortality down below 25 deaths per 1,000 births by 2030.

(48) In 1997, the extreme countries were the Seychelles (17 per 1,000) and Niger (329 per 1,000); in 2017, they were Mauritius (14 per 1,000) and Somalia (133 per 1,000).

Figure 13. Change in probability of dying between ages 0 and 5 in 47 African countries from 1995–2000 to 2015–2020



Source: United Nations (2019a).

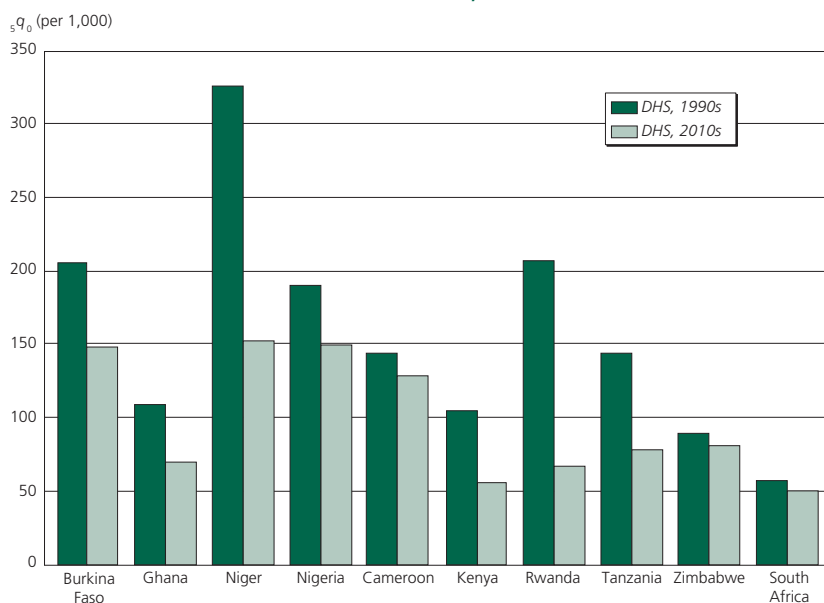
Figure 14 illustrates the trends in under-5 mortality in the 10 reference countries and confirms that situations today are very varied, starting from levels that differed widely in the 1990s. The most notable progress has been made in Niger,<sup>(49)</sup> Rwanda, Tanzania, and Kenya. It has been slower in Burkina Faso and Nigeria, and slight in Cameroon, Zimbabwe, and South Africa, probably partly because of AIDS.

In the course of the mortality transition, significant changes in child mortality never happen without changes in the relative death rates of the different age categories: neonatal mortality (first month of life, mainly connected with conditions during pregnancy and delivery); infant mortality (under 1 year), and later child mortality (ages 1–5). Inequalities between countries, in death rate and pace of decline, continue (Appendix Table A.3; IGME, 2017). Overall, Africa is following a classic pattern. Progress has been slowest (38%) in the neonatal

(49) We have not found a proper explanation for the sharp drop in child mortality in Niger, which started from a very high mortality rate and is now on a par with Burkina Faso and Nigeria. Child vaccination has increased sharply (from 18% to 52%), but its level in 2012 was in no way exceptional compared to the other countries; furthermore, child malnutrition figures for Niger are still among the highest (Appendix Table A.7).

period (first month of life) and greatest for the 1–5 age group (average of 65%), owing to improvements in controlling infectious and respiratory diseases, malaria, and diarrhoea. These differences by age mean that child mortality is increasingly concentrated in the first weeks or months of life. Taking the regional mean, neonatal deaths rose from 26% of total under-5 deaths in 1990 to 36% in 2016. Country figures vary, with an increase from 17% to 30% in Niger, 24% to 32% in DR Congo, and 28% to 44% in Rwanda and Senegal (calculations based on 2017 IGME data). As a result, strategies and resources for combatting child mortality must be focused increasingly on the youngest infants.

**Figure 14. Change in probability of dying between ages 0 and 5 in 10 African countries, 1990s–2010s**



Sources: Demographic and Health Surveys.

#### 4. The end of excess female child mortality?

The mortality gap between boys and girls<sup>(50)</sup> has long been a concern in the demographic literature. In the past 2 decades, research has tried to identify trends worldwide (United Nations, 2011; Sawyer, 2012; Alkema et al., 2014a) and for Africa (Tabutin et al., 2007; Tabutin and Masquelier, 2017). Briefly, it seems that no region of the world has been entirely spared from unfavourable treatment of girls sufficient to affect their health and their probability of dying,

(50) The reasons for the difference in child mortality rates between boys and girls are both biological and sociocultural. When there is no discriminatory behaviour against girls by the family or community in terms of attention, feeding, preventive and curative healthcare, etc., there is always excess mortality in boys for biological reasons: they are less resistant and more vulnerable to a number of congenital, perinatal, and infectious illnesses. Excess female child mortality is an indicator of discrimination. It mostly occurs in the 1–5 age group.

sometimes resulting in excess female mortality. In sub-Saharan Africa, a region long thought not to be affected by excess female child mortality at ages 1–5, the DHS and MICS surveys of the 1990s clearly show excess male infant mortality (ages 0–1) everywhere but discriminatory behaviour against girls aged over 1 in almost half of the countries (Tabutin et al., 2007). The drop in mortality over the past 20 years stems particularly from the decline in infectious diseases at ages 1–5 (which are more likely to prompt discriminatory child healthcare) and the resulting rise in the proportion of deaths from congenital or perinatal diseases at the start of life, which affect boys more than girls. In most countries of the world (apart from India and China), girls' disadvantage is shrinking, and excess mortality among boys is increasing. This is also the case in sub-Saharan Africa. During the 2000s and 2010s, all countries recorded a net excess of male mortality in infants under 1 (mean of 20%). But at ages 1–5, the regional mean is only 3%, whereas the expected figure, given the death rates, would be about 15% (Alkema et al., 2014a).

Looking at the trend from the 1990s to the 2010s, the difference between boys and girls in our sample of 10 countries confirms the general trend. In the mid-2010s, the mortality ratio between boys and girls up to age 5 ranged between 107 (Burkina Faso and DR Congo) and over 120 per 100 (Ghana, Zimbabwe, Rwanda); the same ratio for the first year of life ranged from 110 (Burkina Faso, DR Congo) to 130 per 100 (Rwanda). None of these countries shows excess female child mortality any more (it had been identified in Burkina Faso, Cameroon, Niger, and Ghana), at least at the national level.

## 5. Social inequalities persist

Social and spatial inequalities within countries, which were already substantial in the 1980s and 1990s, persisted in the 2000s and 2010s. How did they change over that period? Who benefited most from the improvements—the rich or the poor, the educated or the illiterate, urban dwellers or rural people?

All recent overviews of inequalities in child health and mortality in developing countries (Houweling and Kunst, 2010; Bendavid, 2014; WHO, 2015; Tabutin and Masquelier, 2017)<sup>(51)</sup> agree that inequalities are wide and that they vary from country to country, but they do not reveal an overall pattern. There is a degree of convergence, with inequalities diminishing, but countries vary widely, as do regions. Table 10 shows the child mortality trends from the 1990s to the 2010s in the 10 reference countries according to three classic sociodemographic characteristics (education, standard of living, and place of residence) of the mother.

*The mother's level of education* has long been recognized in demography and public health research as having a strong positive effect on child health and

(51) Most of these studies are based on comparing results of DHS surveys from the 1990s, 2000s, and 2010s.



**Table 10. Probability of dying between ages 0 and 5 (per 1,000) from the 1990s to the 2010s by mothers' characteristics, 10 African countries**

Country and DHS survey year		Education			Household standard of living			Place of residence		
		None	Primary	Secondary or above	Lowest	Median	Highest	Total	Urban	Rural
Burkina Faso	1993	212	160	87	199	220	157	206	148	214
	2010	156	110	62	175	144	97	149	104	156
	Change (%)	-26	-31	-29	-12	-34	-38	-28	-30	-27
Ghana	1998	131	112	87	134	122	55	110	77	122
	2014	92	72	55	92	61	64	70	64	75
	Change (%)	-30	-36	-37	-31	-50	+16	-36	-17	-39
Niger	1998	314	225	130	—	—	—	302	178	327
	2012	158	121	91	144	168	114	153	83	163
	Change (%)	-53	-48	-9	—	—	—	-53	-60	-52
Nigeria	1990	210	161	113	240	188	120	191	130	208
	2013	180	128	86	190	127	73	150	100	167
	Change (%)	-14	-20	-24	-21	-32	-39	-21	-23	-20
Cameroon	1998	198	128	90	199	136	87	145	111	160
	2011	175	125	77	184	120	72	129	93	153
	Change (%)	-12	-2	-14	-7	-12	-17	-11	-16	-4
Kenya	1998	123	118	60	136	92	61	105	88	109
	2014	51	60	51	57	54	47	56	57	56
	Change (%)	-58	-49	-15	-58	-41	-23	-47	-35	-49
Rwanda	2000	233	200	117	246	210	154	207	141	216
	2015	89	65	38	84	68	40	67	51	70
	Change (%)	-62	-68	-68	-66	-68	-74	-68	-64	-68
Tanzania	1996	162	138	89	140	148	98	145	122	151
	2016	83	79	60	78	73	73	78	86	75
	Change (%)	-49	-43	-33	-44	-51	-26	-46	-30	-50
Zimbabwe	1999	119	94	72	99	102	62	90	69	100
	2015	140	106	64	102	96	52	82	60	92
	Change (%)	+15	+11	-11	+3	-6	-16	-9	-13	-8
South Africa	1998	84	67	46	87	49	22	59	47	72
	2016	—	—	—	—	—	—	42	38	49
	Change (%)	—	—	—	—	—	—	-28	-19	-32

**Note:** These probabilities (mortality risks from birth to age 5) are estimated over a 10-year period preceding the survey.

**Sources:** Demographic and Health Surveys.

mortality. In one macro-geographical study conducted in 175 countries, Gakidou et al. (2010) go as far as to attribute 51% of the reduction in child mortality between 1970 and 2010 to progress in the educational level of women aged 15–50. This is closely related to the woman's status, her power to make decisions in the household, how open she is to the outside world, her ability to discuss and negotiate with health services, her knowledge, etc. (Caldwell, 1986). In a study based on DHS surveys of 50 countries (2003–2013), Gaigbe-Togbe (2015) re-examined the weight of the main determinants of child survival at the individual level and showed that after controlling for other variables (e.g. standard of living

and place of residence), the mother's education always has a distinctive and significant impact on child death probabilities. However, the shift from illiteracy to primary schooling has less effect in Africa than in Asia or Latin America. In the reference countries, there are clear inequalities in child survival rates according to mother's educational level, both in the late 1990s and more recently (Table 10). The gap between the extremes of educational level range from 1 to 3; the more schooling mothers have had, the lower the death rate among their children. Almost everywhere, even if mothers have only been to primary school, their children have better survival rates. So the inequalities are still there, though to varying degrees in different countries. In Niger, Tanzania, and Kenya, child mortality has declined most sharply for illiterate and primary-schooled women. The reverse is the case in Nigeria, while in Burkina Faso, Ghana, and Rwanda, progress was the same for all groups of mothers. Zimbabwe, hard hit by mother-to-child AIDS transmission, is a special case; mortality increased among those children whose mothers were least educated and declined among those whose mothers were most highly educated.

*Household standard of living* is another basic determinant of child health and mortality, and it is addressed by most national and international surveys. All world surveys find that the richer the household, the lower its child mortality. These inequalities follow a more or less linear gradient from the poorest quintile to the wealthiest (Houweling and Kunst, 2010). Both a recent study by Bendavid (2014) covering 54 counties and the 2015 WHO study of 86 countries confirm the impact of standard of living (or of poverty) on under-5 mortality rates, and they conclude that economic-based child mortality inequalities are narrowing in most developing countries. They also record a certain convergence worldwide, but Table 10 shows the width of the gaps between the lowest, median, and highest-income household groups and how they have changed over 15–20 years in our 10 reference countries. Mortality has declined in all three income groups in most countries, although situations differ widely between countries, with no obvious relationship with mortality rates. In the 2010s, excess child mortality in the poorest category was between 20% and 30% in Niger and Kenya, about 100% in Rwanda and Zimbabwe, and over 150% in Nigeria and Cameroon. In Nigeria, Burkina Faso, Cameroon, and Zimbabwe, the decline was sharpest in the wealthiest group (whence a relative increase in inequality), whereas in Tanzania, Kenya, and Ghana, it was the poorest who made most progress, leading to a reduction in inequality. By contrast, in 2000 and 2015, differences between income groups were less marked in Rwanda; almost all the population made progress. Here too, as with education, there is no general trend across Africa in child mortality differences by household standard of living.

*Place of residence* has also long been known as an inequality factor. In the past 40 years, many studies of differences in child survival by place of residence have shown that in low- and medium-income countries, including sub-Saharan Africa, mortality rates are markedly higher in rural areas than in

urban areas (Günther and Harttgen, 2012; Tabutin and Masquelier, 2017). In Africa, much progress has been made in both environments (Table 10). The towns, especially the capitals, have made particular progress in Niger, Nigeria, Cameroon, and Zimbabwe (resulting in increased inequality). But in Tanzania, Ghana, and Kenya, it is the rural areas that have made most progress, so that inequalities by place of residence have shrunk, as in many other countries (Garenne, 2010; WHO, 2015). These differences in patterns of change are due to differences in the type and pace of urbanization, the socio-economic characteristics of the two environments (education, standards of living, etc.) and social and health policies (particularly policies in favour of rural areas).

There is ongoing debate over the future health and mortality situation in urban areas, especially the big cities, in Southern countries (Brockerhoff and Brennan, 1998) and in Africa particularly. Some demographers, probably a minority at present, think that rapid urbanization should speed up the mortality transition. Others think that urbanization is often out of control, with spreading shanty towns and unplanned suburbs, a cycle of poverty, inadequate healthcare provision and public health services (water, waste, pollution) leading to sharp inequalities within towns (Rossier et al., 2019), and deteriorating health conditions for part of the urban population.<sup>(52)</sup> Some even expect excess big-city mortality to emerge. This has not happened so far. In the 10 countries studied, according to the latest DHS surveys, the capitals show some advantage, although they are not always significantly ahead of other towns. Soura (2009), using census data, showed the magnitude of child health and mortality inequalities between districts in Ouagadougou. Günther and Harttgen (2012), in their study of 10 African countries based on DHS data, found a mean excess mortality of 65% for children living in shanty towns compared to those in planned urban housing, and they concluded that inequalities were greater within towns than between rural areas and shanty towns. In most large cities, spatial segregation and especially disparities within city centres are a real challenge for social policy and local public health actions (Fink et al., 2014). Spatial segregation and inequality also pose a major challenge in rural areas (Streatfield et al., 2014).

## 6. Vaccination and assistance at childbirth making progress

Since 2000, there have been special action programmes in many countries, especially in Africa, to tackle vaccination and assistance at childbirth, two major child-mortality risk factors.<sup>(53)</sup> Appendix Table A.7 shows the levels achieved in the 2010s in 39 countries for vaccination and childbirth conditions. For vaccination,

(52) On the advantage of towns and the consequences of poverty and migration on child health and survival in towns, see Anyamele (2009), Bocquier et al. (2011), Maiga and Bocquier (2016), and USAID (2013, 2016).

(53) For vaccination, the WHO's Expanded Programme on Immunization (EPI), launched in 1974, was followed by the Global Alliance for Vaccines and Immunisation, launched in 2000 with international funding (notably by the Bill and Melinda Gates Foundation) with support from the WHO, UNICEF, and the World Bank.

the entire region has made notable progress. The proportion of children aged 12–23 months who have received the eight basic vaccine doses<sup>(54)</sup> has significantly increased in most countries. For example, between the late 1990s and the 2010s, it rose from 18% to 52% in Niger, from 35% to 81% in Burkina Faso, from 36% to 53% in Cameroon, and from 76% to 93% in Rwanda. In Nigeria it is still low, although it has risen (13% to 25%). In the 2010s, in Angola, Central African Republic, Chad, Ethiopia, Gabon, Somalia, and Nigeria, no more than 40% of children were vaccinated (Appendix Table A.7). Still according to the DHS/MICS surveys, social inequalities in this regard diminished in many countries as vaccination campaigns reached rural areas and the poorest communities, but there was variation from country to country (Restrepo-Mendéz et al., 2016).

As regards professional care at delivery and antenatal healthcare (Appendix Table A.7), most countries have made significant progress in the past 20 years. Taking the proportion of deliveries taking place in health facilities as an indicator of healthcare coverage (data available from the DHS/MICS surveys),<sup>(55)</sup> it greatly increased in the 10 reference countries between the 1990s and 2010s: from 15% to 30% in Niger, 3% to 66% in Burkina Faso, 44% to 63% in Tanzania, and 27% to 91% in Rwanda. By contrast, there are countries where it scarcely improved, whatever the coverage rate: in Nigeria it rose from 32% to 36%, in Cameroon from 61% to 62%, and in Zimbabwe from 72% to 77%. Progress has thus been made, and it has affected rural communities and the poorest population groups, but there is still a large proportion of women giving birth in unsafe conditions. Home births, the highest-risk births without skilled help, have not disappeared (Appendix Table A.7), especially in rural areas (around 20% in Benin and DR Congo, 50% in Mozambique, Côte d'Ivoire, and Kenya, and over 70% in Ethiopia, Niger, Nigeria, and Chad).

## 7. Adult mortality: moderate decline

For many years, demographers neglected adult mortality for lack of data. Research on the issue was revived as child mortality declined, new diseases like HIV/AIDS emerged, and maternal death surveillance were introduced.<sup>(56)</sup> From 1990 to 2015, adult mortality declined in all the world's regions, but at 1.2% per year, only one-third as fast as child mortality (3%) (calculated by Tabutin and Masquelier, 2017) and with wide differences between regions.<sup>(57)</sup> Sub-Saharan Africa differs from other low- and medium-income countries not

(54) The WHO recommends one dose of Bacillus Calmette–Guérin vaccine (against tuberculosis), three doses of polio vaccine, three of diphtheria, tetanus, and whooping cough vaccine, and one dose of measles vaccine, to be delivered before the age of 12 months.

(55) Other available indicators, such as type of assistance at childbirth or number of prenatal visits, give similar results.

(56) Mortality estimates for the 15–60 age group are regularly updated for every country in the world through the Global Burden of Disease studies (GBD, 2016). For maternal deaths, see e.g. Alkema et al. (2016). It is still difficult to estimate mortality among the over-60s as data sources are lacking.

(57) For a summary of recent adult mortality trends in Southern countries, see Tabutin and Masquelier (2017, pp. 265–280). For methodology and summary reports on Africa, see Timæus and Jasseh (2004), Reniers et al. (2011), and Masquelier et al. (2014).

only because of its higher mortality rates (in 2015, a mortality gap of about 1 to 2 against South and Central Asia and 1 to 4 against East Asia), but also the relatively slight progress made between 1990 and 2014. In 25 years, the probability of dying between the ages of 15 and 60 fell by only 16% (366 per 1,000 to 310 per 1,000, regardless of sex) compared to 25%–35% elsewhere (32% in South Asia, falling from 250 per 1,000 to 170 per 1,000). This has increased the inequalities between major regions of the world. In 2015, the probability of dying between the ages of 15 and 60 (regardless of sex) was about 310 per 1,000 in Africa, 175 per 1,000 in South and Central Asia, 135 per 1,000 in Latin America, and 82 per 1,000 in East Asia, with a global mean of 145 per 1,000 (Tabutin and Masquelier, 2017).

There are also disparities within the continent. Masquelier et al. (2014) tracked child mortality (0–5 years) and adult mortality (15–60 years) in 34 sub-Saharan countries over 3 decades, using data on the survival of the children, brothers, and sisters of the women interviewed in 72 DHS surveys. While child mortality rates have converged somewhat since 1990, the authors show an increasingly varied pattern in adult mortality rates, with the highest probabilities concentrated in Eastern and Southern Africa, as a result of the massive impact of the HIV/AIDS epidemic. AIDS and political conflict disrupted the decline in mortality in a number of West and Central African countries, including Cameroon, Côte d'Ivoire, Nigeria, and Liberia. In 2015, adult mortality rates in some 15 African countries were still comparable to those of 1990 (Tabutin and Masquelier, 2017).

Unlike child mortality, there are few studies of social inequality in adult mortality rates in Africa, apart from a few on countries hard hit by AIDS. Spatial inequalities are scarcely better documented, as they are hard to measure without good-quality civil registration systems. In most countries, even simple urban–rural differences can only be estimated by an indirect approach.<sup>(58)</sup> Günther and Harttgen (2012) used indirect methods in their study of 14 sub-Saharan countries and reported very high mortality rates overall, country differences, and a rise from the mid-1990s to the mid-2000s, mainly due to the prevalence of AIDS. But, perhaps more surprisingly, they also report higher mortality in towns than in rural areas in 11 of the 14 countries.<sup>(59)</sup> The health disadvantages of urban life (population density, shanty towns, pollution, accidents, risk factors of non-communicable diseases, etc.) would seem to outweigh the positive effect of higher standards of living and much better health facilities than in rural areas.

(58) For example, basing estimates on the information women give about the survival or death of their brothers and sisters when interviewed for the DHS/MICS surveys. This approach assumes, among other things, that all the siblings of a woman who has lived all her life in a rural area, also did so (the same goes for urban women). This is a strong hypothesis and ignores the possibility of migration (Lankoande, 2016).

(59) From 5% to 10% in Tanzania, Zimbabwe, Senegal, and Mozambique, and 30% or more in Burkina Faso, Ethiopia, and Kenya.

As to inequality between the sexes, in 1990 and 2015 alike, men had a higher probability than women of dying between the ages of 15 and 60. As a mean across 42 countries, the difference was 16% in 1991 (397 per 1,000 for men vs. 335 per 1,000 for women) and 13% in 2015 (329 per 1,000 vs. 286 per 1,000) (Tabutin and Masquelier, 2017). In contrast to other regions of the world, progress has been a little slower for women (–15%) than for men (–17%), partly due to AIDS and maternal deaths.

## 8. HIV/AIDS: ‘Miles to go’

This title of a UNAIDS report on Africa<sup>(60)</sup> seems to sum up the situation. Progress is evident, but the scourge has by no means disappeared. Prevalence of HIV infection and AIDS-related mortality have declined worldwide in the past 10–15 years, but unevenly. In sub-Saharan Africa, which was particularly hard hit, the mean prevalence was 4.5% in 2018 in the 15–49 age group (7.0% in East and Southern Africa and 1.5% in West and Central Africa vs. 0.2% in Asia and Europe/North America, 1.2% in the Caribbean, and 0.4% in Latin America). We are a long way from UNAIDS’ proposed goal of eliminating the disease in Africa by 2030.

In most affected African countries, the annual number of new HIV infections rose sharply from 1985 to 1997 and then dropped significantly (by 30% between 2010 and 2017 in East and Southern Africa according to UNAIDS’ 2018 data) as a result of the first awareness-raising and prevention programmes. The number of deaths from AIDS also rose sharply to a peak around 2004 (1,290,000 deaths) before declining by 75% between 2005 and 2018, notably after the introduction of antiretroviral drugs.<sup>(61)</sup> Despite these advances, in 2018 sub-Saharan Africa (14% of the world population) still accounted for 68% of all people living with HIV/AIDS (26 million of the world’s 38 million sufferers), 65% of new infections (1.1 million out of a total 1.7 million), and 61% of AIDS-related deaths (470,000 out of 770,000). These proportions are close to those of the early 2000s.

There are very marked differences in rates and trends (UNAIDS, 2018). East and Southern Africa have made most progress (66% of the infected population have access to antiretroviral drugs), but although HIV prevalences are declining they are still very high.<sup>(62)</sup> In 2017, these regions accounted for nearly 53% of the world’s HIV-positive population and 45% of new

(60) Regularly updated estimates and data as well as numerous reports and publications, by country and by region, mainly but not exclusively on HIV and AIDS, can be found on the UNAIDS website, [www.unaids.org](http://www.unaids.org)

(61) In Southern Africa, antiretroviral drug use rose by 42% between 2010 and 2017.

(62) Prevalence is defined as the proportion of HIV-positive people in the general population surveyed (aged 15–49). According to the most recent DHS data, taking both sexes together, it stood at 21% in South Africa (2016), 14% in Zimbabwe (2015) and Namibia (2013), 25% in Lesotho (2014), 13% in Mozambique (2015), 5% in Tanzania (2011), and 6% in Kenya (2009).

infections. Prevalences in West and Central Africa are much lower<sup>(63)</sup> and falling slightly. In 2017, these regions accounted for 17% of the world's HIV-positive population and 21% of new infections; antiretroviral therapy coverage among pregnant women and children is often low. Recently, trends in different countries have diverged, reflecting government policies and health investment priorities. Between 2010 and 2017, the number of new HIV cases held steady in Côte d'Ivoire but fell by 5% in Nigeria and 35% in DR Congo. Over those 7 years, the drop in AIDS mortality ranged from 19% in Nigeria to 56% in DR Congo.

For the past 30 years, women's infection rates have been higher than men's<sup>(64)</sup> in all sub-Saharan countries, as the DHS survey data confirm. But between 2005 and 2016, their mortality rates declined faster than men's (58% fewer female deaths vs. 43% fewer male deaths). Masquelier and Reniers (2018) attribute this to better testing and screening coverage of women, more contact with health services (prenatal care, particularly under mother-to-baby HIV transmission prevention programmes), and better antiretroviral treatment coverage and follow-up. Nonetheless, according to UNAIDS (2018), in sub-Saharan Africa three-quarters of new cases in the 15–19 age group in 2017 were girls, and at ages 15–24 the prevalence of HIV among females was double that among males.

Much attention has been paid to social inequality with regard to HIV/AIDS. Results depend on the period studied because social groups or communities can react differently to campaigns designed to change sexual norms and behaviours (Glynn et al., 2004; Hargreaves et al., 2008; Fox, 2010). Overall and in the light of the most recent DHS surveys, in countries where the prevalence is low (below 2%) or moderate (2% to 4%), town dwellers and the better educated and higher-income social groups are still affected. In Southern Africa, where infection levels are much higher, the disparities are less pronounced. There are often sharp spatial inequalities within countries (Kharsany and Karim, 2016). In a study by province of 12 countries on different continents in the 2000s (UNAIDS, 2013), the ratios between extremes of prevalence in the same country ranged between 1 and 5. More recently, a finer geographical scale has been achieved by applying new methodologies and mapping methods to the DHS surveys. Results confirm the uneven pattern of prevalence within countries,<sup>(65)</sup> and they pinpoint priority areas for public health drives (Larmarange et al., 2011; Larmarange and Bendaud, 2014).

(63) Ranging, according to the DHS surveys, from about 1% in Burkina Faso, DR Congo, Mali, and Ethiopia and 2% in Angola to nearly 4% in Cameroon (2011) and Côte d'Ivoire (2012).

(64) Because they are sexually active at an earlier age, with partners (mainly spouses) who are often older and have multiple previous and concurrent sexual experiences, and because the probability of HIV transmission from man to woman is higher than the probability of transmission from woman to man.

(65) Twelve reports edited by J. Larmarange are to be published by UNAIDS (Zimbabwe, Tanzania, Malawi, Guinea, Côte d'Ivoire, Cameroon, Burundi, Burkina Faso, Uganda, Rwanda, Lesotho, and Haiti).



## 9. Not enough progress in the battle against maternal mortality

The maternal mortality rate (number of maternal deaths per 100,000 births) is certainly one of the most complicated key mortality indicators to measure in the absence of a precise civil registration system recording cause of death.<sup>(66)</sup> All estimates, including those using the most recent methodologies, should be viewed with caution, especially for Africa.

Starting from very high levels in the 1990s, maternal death rates have declined in sub-Saharan Africa, but more slowly than in Asia or North Africa. Around 2015 (Table 9), with 546 maternal deaths per 100,000 births (about 1 per 200 births), it was well above the mean of 239 for all developing countries, lagging far behind South Asia (176) and Southeast Asia (110). In 2015, 201,000 maternal deaths were recorded (vs. 529,000 in 2000), but this still amounted to 66% of world maternal deaths (vs. 44% in 2000) (Tabutin and Masquelier, 2017). Expressed as a woman's probability of dying from maternal causes in the course of her reproductive life, a 15-year-old sub-Saharan African girl (taking into account her probably large number of future births among other factors) still recently had a 1 in 36 probability (1 in 16 in 2000) compared to 1 in 210 in South Asia, 1 in 450 in North Africa, 1 in 2,300 in East Asia, and 1 in 4,900 in the developed countries (WHO et al., 2015). These few figures illustrate the danger that still hangs over African women in the course of their reproductive lives.

Around 2015, most countries were still recording between 450 and 650 maternal deaths per 100,000 births. At one extreme, some countries enjoyed relatively low maternal mortality rates at below 130 per 100,000 births (Mauritius, Cape Verde, South Africa, and Botswana); at the other extreme, there were countries with very high maternal death rates of over 650 per 100,000 births (Guinea, Liberia, Nigeria, Chad, and Sierra Leone which, with 1,360 per 100,000 births in 2015, has been the worst-placed country for 25 years). These variations between countries and inequalities between social groups and places of residence are connected with prenatal healthcare coverage, the type of delivery assistance, postnatal follow-up, and fertility levels. The better these are, the better the control of complications such as haemorrhage, infections, high blood pressure, etc. during pregnancy and at childbirth. AIDS also has an impact on the probability of maternal death. It is an indirect cause of 2% of maternal deaths in the region as a whole and over 20% in the hardest-hit countries (WHO et al., 2015).

Women's reproductive health is also endangered by voluntary abortion in a region where most countries have laws restricting abortion rights and where legal abortion services are almost non-existent. Women resort to clandestine practices, which are dangerous. Sedgh et al. (2016) estimate that in 2008, 97% of abortions in Africa were performed illegally. In their overview of the issue,

(66) As with child mortality (IGME), the WHO, UNICEF, the World Bank, and the United Nations commissioned a panel of scientific experts to estimate levels and trends in all countries of the world (the Maternal Mortality Estimation Inter-Agency Group [MMEIG]).



Guillaume and Rossier (2018) stress that Africa stands apart from the rest of the world in the prevalence of unsafe abortion methods; they estimate nearly 50% of abortions to be high-risk (compared to a world mean of 14%, 17% in Latin America, 13% in South Asia, and 1% in East Asia), with an especially bad situation in Central Africa (69%). As a consequence of unsafe conditions and the lack of emergency obstetric services, the case fatality rate (ratio of deaths to abortions) is high: estimated, for around 2008, at 220 per 100,000 abortions worldwide (1 death per 455 abortions), 150 in South Asia, 30 in Latin America, and 520 in sub-Saharan Africa (1 death per 190 abortions). Abortion and the related risks of illness or death particularly concern young unmarried women aged 15–24 making little use of contraception, and women in the most underprivileged social groups (Chae et al., 2017). Although prudence is called for in all the estimates given here, abortion and maternal mortality remain fundamental public health problems in sub-Saharan Africa.

## 10. The dual epidemiological burden and the rise of non-communicable diseases

The significant increase in life expectancy in the past 30–40 years has profoundly changed the pattern of underlying causes of death, as infectious diseases and malnutrition (particularly at the youngest ages) have declined, and chronic and non-communicable diseases, which are connected more with lifestyle and consumption habits, have increased among adults and the elderly. But it is very difficult to measure this epidemiological shift in Africa, without complete and reliable civil registration systems specifying the illness that led to the death. (South Africa, Mauritius, and São Tomé and Príncipe are among a few that do.) There have been only a few studies, conducted in towns, usually capitals (e.g. Antananarivo in Madagascar; see Masquelier et al., 2014) and data from demographic surveillance systems, which usually use verbal autopsies in rural areas.<sup>(67)</sup> Streatfield et al. (2014), in an analysis of 22 surveillance sites in Africa and Asia, find that epidemiological profiles vary widely from site to site, even within one country. Given the lack of data, modelling is needed to provide information and country comparisons, which is what the international research team in the Global Burden of Disease project have been doing in recent years (GBD Collaborators, 2016).<sup>(68)</sup>

Comparing the GBD data for the 1990 to 2013 period, Masquelier and Kanté (2017) confirm that sub-Saharan Africa is in the full throes of the epidemiological transition. For the region as a whole, for example, the proportion of females dying from infectious or nutritional diseases or as newborns fell from 72% to 62%, and the proportion dying from non-communicable diseases

(67) Verbal autopsies consist of interviews with close kin of the deceased about the symptoms of the disease that led to their death.

(68) The most recent WHO statistics also give numerous health and mortality indicators by country and for each of the major world regions (WHO, 2018).

(cardiovascular and circulatory diseases, diabetes, cancer, etc.) rose from 24% to 32%. Of course, these figures vary markedly from country to country (GBD Collaborators, 2016). One local example is Niakhar in Senegal, an area with 30 villages and a population of 46,000 in 2015, which has been monitored since 1983; the population is far advanced in its epidemiological transition, with a life expectancy at birth estimated at 70 years in 2014. From the 1985–1989 period to 2005–2009, child deaths from diarrhoea, infections (mainly acute respiratory infections), and malnutrition fell considerably, but the death rate from malaria did not change. Among adults aged 15–49, deaths from diarrhoea and accidents declined; deaths from cancer, diabetes, and cirrhosis increased sharply; and male deaths from chronic disease almost doubled from 34% to 62% (Delaunay, 2017). The same kind of pattern of change is found in other rural areas of Africa and capitals such as Accra, Antananarivo, and Ouagadougou, although each place has its own history and particularities.

That said, the burden of communicable, infectious, and parasite diseases is still heavy at the national level in many African countries. According to a ranking of the main causes of death in 10 developing countries, including three in Africa (Tabutin and Masquelier, 2017), diarrhoeal diseases, lower respiratory tract infections, and other infectious diseases such as meningitis and measles were still the leading causes of death in Burkina Faso and Nigeria in 2015, as they had been in 1990. Malaria was still in second place, followed by diseases associated with the neonatal period and then cardiovascular diseases and cancer. ‘The region has seen significant health gains over the past 30 years. However, challenges still remain as a result of infectious diseases’ (Whiteside and Zebryk, 2017, p. 311).

In the terms of the model proposed by Frenk et al. (1989), the epidemiological shift in Africa over past 20 years fits the protracted–polarized transition model. It is ‘protracted’ in that the different stages of the process overlap for some time, infectious and nutritional diseases coexisting with the rise of non-communicable diseases causing early death, before age 70. This ‘double burden’ is found particularly in sub-Saharan Africa’s major cities, where poverty and environmental problems (water, air, waste, etc.) hamper the control of infectious diseases at the same time as new, high-risk behaviour patterns (poor diet, sedentary lifestyle, alcohol consumption in some countries, etc.) are emerging, fostering high blood pressure, diabetes, and obesity. The model is ‘polarized’ in that it often leads to a widening of health and mortality inequalities within a country or between social groups in the towns. The poorest groups present higher mortality rates, mainly due to infectious diseases; the better-off groups, the middle classes, are more exposed to non-communicable diseases. Agyei-Mensah and Graft Aikins (2010) give a clear description of the situation in Accra, Ghana; Zeba et al. (2012) do the same for Burkina Faso, and Rossier et al. (2019) for Ouagadougou, Burkina Faso. This bipolar model is a challenge for public health decision-makers because it creates competition for resources;

strategies and priorities for action need to be defined, or redefined, in situations where there are few prevention programmes and where the healthcare supply is not equipped to deal with costly, chronic diseases, disability, etc.

## VII. Urbanization and internal migration

Urbanization and internal migration are the two main characteristics of change in the geographical distribution of populations within and across countries, new geographies of settlement, and shifts in demographic behaviour (Mercandilli and Losch, 2017).

### 1. Strong urban growth but slower than expected

Sub-Saharan Africa has experienced relatively fast and sustained urbanization since the 1960s. While in the 1960s only 15% of the population lived in urban areas, the proportion reached 27% in the early 1990s and has now climbed to 41%. According to the latest UN projections (2018), urbanization is expected to continue, reaching 50% around 2035 and 58% in 2050 (Table 11). Between 1990 and 2020, the urban population more than tripled (from 136 million to

**Table 11. Percentage urban and urban population by subregion of Africa and the world, 1990–2020, and projections to 2050**

Subregion	Percentage urban						Urban population (millions)					
	1990	2000	2010	2020	2035	2050	1990	2000	2010	2020	2035	2050
Western Africa	30.2	34.5	41.1	47.7	56.3	63.8	55	81	127	192	329	517
Central Africa	34.0	39.7	45.2	50.6	59.0	67.0	24	38	59	91	160	257
Eastern Africa	18.0	21.0	24.4	29.0	37.5	47.1	36	55	85	132	247	418
Southern Africa	48.8	53.8	59.4	64.6	71.6	77.2	21	28	35	44	56	66
Sub-Saharan Africa	27.5	31.4	36.1	41.4	49.8	58.1	136	202	306	459	792	1,258
North Africa	45.7	48.3	50.5	52.5	57.2	64.1	65	83	103	129	174	231
East Asia	33.9	42.0	54.4	64.8	75.7	81.4	471	636	868	1,078	1,264	1,291
South Asia	26.5	29.0	32.5	36.6	44.6	53.8	316	422	555	709	988	1,282
Southeast Asia	31.5	37.9	44.3	50.0	58.3	66.0	140	199	265	334	438	527
Latin America	70.7	75.5	78.6	81.2	84.7	87.8	315	397	470	539	627	685
Developing countries	34.9	40.1	46.1	51.7	59.0	65.6	1,460	1,984	2,641	3,375	4,485	5,556
Developed countries	72.4	74.2	77.2	79.1	82.7	86.6	830	884	954	1,004	1,071	1,124
World	43.0	46.7	51.7	56.2	62.5	68.4	2,290	2,868	3,595	4,379	5,556	6,680
<i>Source:</i> United Nations (2018).												

459 million), while the rural population only doubled. In 2050, more than 1.25 billion Africans will live in urban areas.<sup>(69)</sup> Sub-Saharan Africa is thus clearly urbanizing, with cities expected to absorb almost 80% of the continent's additional inhabitants over the next 3 decades. However, in 2020, the proportion of the region's population living in urban areas remains lower overall (41%) than in other world regions, apart from South Asia (37%); elsewhere, urbanization ranges from 53% (North Africa) to 81% (Latin America) (Table 11).

Southern Africa (mainly South Africa) is by far the most urbanized subregion on the continent. Almost two-thirds of its population lives in urban areas, a proportion that is expected to rise to three-quarters in 2050. It is far more urbanized than the average for developing countries. Eastern Africa, where less than 30% of the population lives in urban areas, is still predominately rural. According to projections, it will continue to be more rural than urban in the coming decades (47% living in urban areas in 2050). Western and Central Africa occupy an intermediate position. Their populations are currently 50% urban (to increase to 65% in 2050, according to projections).

Although urbanization has progressed, and urban populations are continuing to increase rapidly, projected urbanization has been revised significantly downward since it was discussed in the previous chronicle (Tabutin and Schoumaker, 2004). In 2002, the United Nations projected that 54% of the population of sub-Saharan Africa would be urban in 2030, whereas the most recent projections (United Nations, 2018) estimate it at around 47%.

Recent studies have shown that, in many African countries (including Ethiopia, Malawi, Mozambique, Sudan, Togo, and Nigeria), urbanization was quite slow overall in the early 2000s (UN-Habitat, 2014). Periods of de-urbanization have even been observed in certain countries, such as Zambia and Côte d'Ivoire in the late 1990s (Beauchemin, 2004; Beauchemin and Bocquier, 2004; UN-Habitat, 2014; Potts, 2016), and Zimbabwe in the 2000s (Potts, 2016). One of the factors involved seems to be decreasing rural–urban migration and/or increasing urban–rural migration (UN-Habitat, 2014), notably in response to economic difficulties (employment, housing, etc.) in cities (Potts, 2016). Recent census-based estimates indicate that the contribution of migration<sup>(70)</sup> to urbanization has declined significantly since the 1980s and has even become negative in Southern Africa (Menashe-Oren and Stecklov, 2017; Bocquier and Schoumaker, 2018). At the scale of the continent, urbanization today results more from the difference in natural population growth (higher in urban than in rural areas) than from migration (UN-Habitat, 2014; Jedwab et al., 2017; Bocquier and Schoumaker, 2018; Hommann and Lall, 2019).

Future rates of urbanization in Africa are thus uncertain and will depend on developments in migration between cities and the countryside, the

(69) Between 2020 and 2050, sub-Saharan Africa is expected to gain around 1 billion additional inhabitants, including 800 million in cities.

(70) And the reclassification of rural areas as urban areas.

reclassification of rural areas as urban areas, and differences in natural population growth between the two. The stagnation of urban fertility observed in many African countries (Bocquier and Schoumaker, 2018) has contributed to cities having relatively higher natural growth, and thus to urbanization. However, this could yet slow if urban fertility declines more rapidly and if net migration into cities continues to decline.

## 2. More and larger megalopolises

With urbanization and the rapid growth of the urban population, the largest cities have also continued to grow. The number of cities with more than a million inhabitants tripled between 1990 and 2020, going from 17 to 54, potentially surpassing 80 in 2030 (United Nations, 2018). Whereas in 2000 no sub-Saharan African city had more than 10 million inhabitants, two have since crossed this threshold (Lagos and Kinshasa), and two others (Luanda and Dar es Salaam) are expected to have more than 13 million inhabitants in 2035 (Table 12). The proportion of countries' total urban population living in the largest cities differs between countries. Some, like Kinshasa, Luanda, and Abidjan, contain more than a third of a country's entire urban population. Others, such as Lagos and Johannesburg, despite their large size, represent only about 15% of the urban population in their respective countries. Thus, as Dubresson (2003) pointed out, although in some countries a very large part of the population is concentrated in the capital or the largest city, there is no single, general model in Africa.

**Table 12. Population change between 1990 and 2035 in the 10 urban agglomerations of sub-Saharan Africa with the largest populations in 2020**

Agglomeration	Population (millions)					Percentage of country's urban population living in the agglomeration (2020)	Percentage urban in 2020
	1990	2000	2010	2020	2035		
Lagos (Nigeria)	4,764	7,281	10,441	14,368	24,419	13	52
Kinshasa (DR Congo)	3,683	6,140	9,382	14,342	26,682	35	46
Luanda (Angola)	1,474	2,829	5,300	8,330	14,495	38	67
Dar es Salaam (Tanzania)	1,474	2,272	3,870	6,702	13,383	30	35
Johannesburg (South Africa)	1,879	3,046	4,249	5,783	7,461	15	67
Abidjan (Côte d'Ivoire)	2,102	3,007	3,954	5,203	8,393	38	52
Cape Town (South Africa)	2,155	2,785	3,604	4,618	5,845	12	67
Nairobi (Kenya)	1,380	2,214	3,237	4,735	8,499	32	28
Addis Ababa (Ethiopia)	1,791	2,377	3,126	4,794	8,939	20	39
Kano (Nigeria)	2,095	2,602	3,221	3,999	6,579	4	52
<b>Source:</b> United Nations (2018).							

These cities will no doubt continue to grow, as will the total urban population in Africa. It is difficult, however, to project how these large cities' populations will change. The UN projections assume that each of them will grow at approximately the same rate as the urban population of the country as a whole and that they will thus represent an almost identical proportion of their respective countries' urban population in 2035 as in 2020. But will Kinshasa continue to grow by more than 4% per year, reaching 26 million inhabitants in 2035 (an increase of 12 million in 15 years)? Will growth in Lagos and Abidjan accelerate compared to the most recent period, as UN projections suggest? There is no guarantee that it will, and it could even be imagined that their growth will slow. Analysis of census data from 14 countries (including Tanzania, Kenya, and South Africa) shows that the rate of net migration into African capitals has decreased considerably since the 1970s (Bocquier and Schoumaker, 2018), suggesting that their population growth should consequently slow down. A number of observers have also noted that urban population growth is occurring mainly in secondary and small towns (UN-Habitat, 2014).

### 3. Multiple challenges

Even if urban growth turns out to be slower than expected, over the next 30 years it will result in several hundred million more city dwellers in sub-Saharan Africa. This urbanization, although it clearly has positive aspects, given the advantages of urban areas over rural areas in terms of health and education, also poses challenges, notably around housing, water and electricity provision, and pollution.

Although the proportion of urban sub-Saharan Africans living in informal settlements (slums) has decreased since the 2000s,<sup>(71)</sup> it remains very high (over 50%), and the absolute number of people living in informal settlements<sup>(72)</sup> continues to grow. Although access to drinking water inside the household or in the courtyard is much more prevalent in cities than in rural areas, it remains an important challenge (Dos Santos, 2006). In the 10 selected countries, in the 2010s the share of urban households with a tap within the household or in the courtyard was below 50% in most cases, with the exception of Zimbabwe (58%) and South Africa (86%). It has even decreased in several of them (Cameroon, Tanzania, Ghana, Kenya, and Zimbabwe; Table 13)<sup>(73)</sup>, illustrating the difficulties in investing in expensive infrastructure in the context of rapid population growth in African cities. Access to electricity, on the other hand, has increased significantly over the past 25 years, particularly in cities, where the proportions of households with access have reached 49%

(71) According to the United Nations, it decreased from 65% in 2000 to 55% in 2014.

(72) Generally referred to as 'slums' in the reports of UN-Habitat.

(73) The substantial decrease in Ghana is linked to a very large increase in the consumption of bagged water, possibly related to a deterioration in the quality of running water or disruptions in the supply network.

in Burkina Faso, 68% in Kenya, and above 80% in Cameroon, Ghana, Zimbabwe, and Nigeria (Table 13). This improvement in household amenities also contributes to reducing indoor pollution from the use of wood, coal, and oil for lighting, cooking, and heating (UNEP, 2016). However, there are still very large inequalities in water and electricity supply between urban and rural areas (the latter are less well served in all countries).

Sanitation, pollution, and the environment of these cities more generally are also crucial issues (UNEP, 2016). For example, air pollution, due in particular to motorized transport, household fuel, and industry, has worsened in African cities overall (UNEP, 2016; Amegah and Agyei-Mensah, 2017). Improving urban transportation systems would limit pollution and improve mobility, but they seem in many cases to be worsening (Tembe et al., 2018). Mobility, employment, and security are all at the heart of future urban policies in increasingly dense and populated cities.

**Table 13. Change in proportions of households with water and electricity from the 1990s to the 2010s in 10 countries, by place of residence**

Country and DHS survey date	Years	Percentage of households using a tap inside dwelling or the courtyard as a source of drinking water			Percentage of households with electricity		
		Urban	Rural	Total	Urban	Rural	Total
Burkina Faso	1993	32.6	0.1	6.7	29.4	0.6	6.1
	2010	41.9	0.6	12.9	48.5	1.4	13.1
Ghana	1998	41.5	3.5	16.9	82.4	20.9	42.6
	2014	16.1	1.9	9.7	90.8	63.0	78.3
Niger	1998	26.6	0.1	4.9	36.5	0.2	6.7
	2012	38.6	1.1	9.9	61.8	5.2	14.4
Nigeria	1990	—	—	—	—	—	—
	2013	6.7	2.7	4.3	83.6	34.4	55.6
Cameroon	1998	28.4	2.9	11.2	79.0	22.0	40.7
	2011	26.5	2.4	14.7	87.5	18.5	53.7
Kenya	1998	58.3	12.3	23.2	47.5	4.3	14.5
	2014	45.5	15.0	27.8	68.4	12.6	36.0
Rwanda	2000	33.5	0.9	5.4	38.9	0.9	6.2
	2015	42.2	2.7	9.5	72.9	12.4	22.8
Tanzania	1996	31.7	2.0	8.7	35.5	1.8	9.4
	2016	25.3	4.4	11.3	56.4	5.9	22.5
Zimbabwe	1999	90.9	6.1	38.4	87.4	8.3	38.4
	2015	58.3	5.9	23.5	81.2	9.7	33.7
South Africa	1998	87.0	26.6	62.3	84.2	37.1	64.9
	2016	86.2	37.8	70.8	91.6	86.6	90.0
<i>Source:</i> Authors' calculations based on DHS data.							

Managing urban growth, especially in the largest cities, is a major factor for economic growth and the well-being of populations. But simply slowing flows will not be enough to meet the major challenges ahead in social, health, environmental, and security terms, or to ensure inclusive, safe, and sustainable cities (SDG 11).

## VIII. International migration

### 1. Still an insufficiently documented phenomenon

As we highlighted in our previous chronicle a decade and a half ago (Tabutin and Schoumaker, 2004), international migration remains the most poorly measured, least-known demographic phenomenon in Africa, and particularly sub-Saharan Africa. While undeniable progress has been made, notably through international efforts such as the MAFE project (Migration Between Africa and Europe; see Beauchemin et al., 2013; Beauchemin, 2015) and the Determinants of International Migration project (DEMIG, 2015), for many countries we are still far from having data on migratory movements and the associated factors.

The main information that is available to make international comparisons is on migrant stocks; that is, the number of people residing in a given country who were born in another country. These data are mostly drawn from censuses, via a question on country of birth (United Nations, 2017d). In the Global South, refugee statistics from the United Nations High Commissioner for Refugees are generally added to census data to estimate migrant stocks (United Nations, 2017d). Since the early 1990s, the UNPD has used these two sources of information to produce estimates of bilateral migrant stocks,<sup>(74)</sup> i.e. the number of migrants in each country, classified by country of birth, for most countries in the world. These data are imperfect, however, particularly in sub-Saharan Africa<sup>(75)</sup> and for the most recent years are based in part on extrapolations. In some countries where no data is available at all (Somalia and Eritrea, for example), they are modelled on the basis of data from closely related countries.

Migration flows are much less well documented. The DEMIG project (DEMIG, 2015) has compiled data on flows from more than 200 countries of origin to 34 destination countries, improving our knowledge of the scale of migration from sub-Saharan Africa towards other world regions and how it has been changing over time. However, these data include little information on migration into and within sub-Saharan Africa. Return migration, for example, is very poorly documented. Finally, the information available on the characteristics of migrants and factors in migration is even more limited. While

(74) For the years 1990, 1995, 2000, 2005, 2010, 2015, and 2017.

(75) According to the UNPD, around 1 in 5 African countries (including North Africa) has not provided information on the total number of migrants since 2000, and 1 in 3 has not published data on international migrants by country of origin since that year.



censuses can be used in certain contexts to address these questions (as in Senegal), the main sources of original, high-quality data are surveys. However, there have been few surveys specifically focused on international migration. The results of the MAFE project provide information on international migration in certain African countries.<sup>(76)</sup>

## 2. Increasing numbers of migrants, increasingly diverse destinations

In 2017, around 25 million people who were born in a sub-Saharan African country lived outside their country of birth, i.e. just over 2.5% of the population of sub-Saharan Africa (Table 14). This is lower than the proportion of migrants worldwide (257 million migrants, or 3.4% of the world population), highlighting the fact that sub-Saharan Africans are not particularly mobile. Moreover, while the number of sub-Saharan migrants increased from 15 to 25 million between 1990 and 2017, its growth was lower than that of the region's

**Table 14. Numbers of sub-Saharan migrants by region of residence, 1990–2017**

Region of residence of migrants born in a country of sub-Saharan Africa	Numbers of migrants (thousands)				Mean annual growth rate, 1990–2017 (%)
	1990	2000	2010	2017	
Western Africa	4,070	4,715	5,268	5,981	1.4
Southern Africa	915	,847	1,641	2,402	3.6
Central Africa	1,186	1,391	1,526	2,603	2.9
Eastern Africa	5,255	3,879	3,792	6,016	0.5
Total sub-Saharan Africa	11,426	10,832	12,227	17,002	1.5
Europe	1,654	2,326	3,724	4,144	3.4
North America	399	823	1,529	1,904	5.8
Asia	224	273	518	670	4.1
North Africa (excluding Sudan)	38	129	159	183	5.8
North Africa (including Sudan)	1,380	868	694	873	–1.7
Oceania	114	178	357	440	5.0
Other	9	13	32	44	5.9
Total outside sub-Saharan Africa	3,779	4,479	6,855	8,075	2.8
Total sub-Saharan migrants across the world	15,205	15,311	19,082	25,077	1.9
Percentage of total living in sub-Saharan Africa	75	71	64	68	
<b>Note:</b> The data refer to numbers of persons whose country of residence is not their country of birth.					
<b>Source:</b> United Nations (2017).					

(76) The MAFE project surveys examined Dakar (Senegal), Kinshasa (DR Congo), Accra and Kumasi (Ghana), and six destination countries (France, Italy, Spain, United Kingdom, Netherlands, Belgium). Although they provided a rich body of results, they thus cannot be generalized to Africa as a whole.

population as a whole, which doubled during this period. Admittedly, the data are imperfect and no doubt fail to count a portion of African migrants, but they show that we are far from an explosion of migration both within and from sub-Saharan Africa.

Sub-Saharan migrants overwhelmingly remain within the continent, as has been regularly emphasized (Tabutin and Schoumaker, 2004; Flahaux and de Haas, 2016). Out of the 25 million sub-Saharan migrants in 2017, 17 million lived in another sub-Saharan African country. The share of migrants in the sub-Saharan African population has declined in recent decades, from 75% in the early 1990s to 68% in 2017 (Table 14). This decline continues a long-term trend, running back to the 1960s, which is probably partly linked to greater restrictions on mobility between countries within the region (Flahaux and de Haas, 2016). Over the same period, both the share and the number of migrants in other world regions have increased significantly.

Within sub-Saharan Africa, there are sharp contrasts between trends in different countries. While mobility has slowed on average, this is not the case everywhere. In particular, the number of sub-Saharan migrants in Southern Africa—principally South Africa—has increased at a markedly faster rate than in other African regions. The end of apartheid in the mid-1990s was accompanied by significant growth in immigration from many sub-Saharan countries.<sup>(77)</sup> Numbers of migrants in Eastern Africa first decreased between 1990 and 2010 (with a large decrease in the number of Mozambican migrants) before increasing rapidly since 2010. In other regions, there has generally been moderate change, with disparities depending on the country. Given the limitations of the available data, it is difficult to paint a precise portrait of mobility within the continent. It is clear, however, that there have been major changes over time, particularly due to refugee movements and changes in migration policies.

Between 1990 and 2017, the share of migrants from sub-Saharan Africa living in other world regions increased from 25% to 32%. Their absolute number more than doubled during this period. Outside of Africa, Europe is still by far the main destination, with just over 4 million sub-Saharan immigrants in 2017 (around 17% of the total), followed by North America (almost 2 million), Asia (nearly 700,000), Oceania (more than 400,000), and North Africa (just under 200,000, excluding Sudan). In absolute terms, Europe and North America saw large increases in the number of migrants from sub-Saharan Africa, from around 2 million in the early 1990s to 6 million in 2017. Growth has been particularly rapid in North America, where the number of sub-Saharan migrants was multiplied by 5 during this period, but also in Oceania and Asia, where numbers have also increased by a factor of 4 to 5 in 3 decades. These sizeable

(77) For example, the MAFE project survey in Kinshasa showed a large increase in emigrations from DR Congo to South Africa between the years 1990 and 2010, whereas departures towards Europe were tending to slow (Schoumaker et al., 2018a).

increases in the numbers of migrants are the result of rapid population growth in sub-Saharan Africa and an increased propensity to leave the region, but also, at least for some countries, of a decrease in returns (Beauchemin et al., 2015; Schoumaker et al., 2018a).

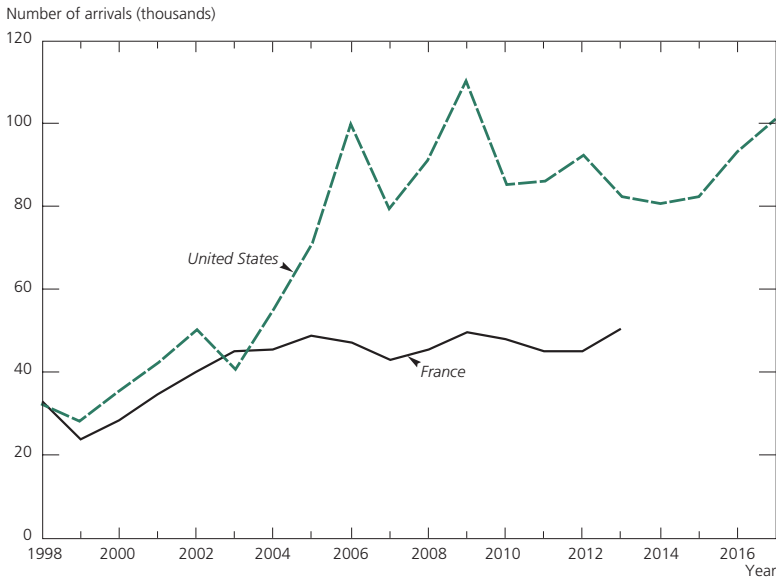
Migration towards non-African countries varies greatly between countries of origin. The increase in the number of migrants in Europe has been particularly marked for people from Nigeria, Ghana, Somalia, Eritrea, South Africa, Senegal, and Côte d'Ivoire.<sup>(78)</sup> This was accompanied by change in the most common migration destinations. For example, while Senegalese migrants have traditionally tended to go to France, increasing numbers have been settling in Spain and Italy (Beauchemin et al., 2018; Schoumaker et al., 2018a). Migration from Ghana, although still largely directed towards the United Kingdom, is also increasing elsewhere, notably in Germany and the Netherlands (Schoumaker et al., 2018a). In Oceania, and mainly in Australia, increases are mostly due to migration from South Africa and Zimbabwe since the 2000s (Lucas and Edgar, 2015). North America has also experienced a large increase in migrants from sub-Saharan Africa (Capps et al., 2012), mainly from Nigeria, Ethiopia, Ghana, Kenya, and South Africa (more than half of sub-Saharan migrants came from these five countries), but also from Liberia, Somalia, Tanzania, and Zimbabwe. The numbers of sub-Saharan African migrants in Asian countries have also increased. A large proportion live in the Gulf countries, but the data undoubtedly underestimate the numbers living elsewhere in Asia, particularly in China. The presence of African traders in the south of China (particularly in Guangzhou), for example, is often attested in the press, although it is not well documented in demographic research (Lan, 2015). Finally, excluding Sudan, North Africa has also seen an increase in migrants since the 1990s. For example, Morocco, which was still considered a transit country a few years ago, is increasingly a destination (Mourji et al., 2016).

This increase in migrant stocks is the result of a higher number of entries (immigrations) than exits (emigrations). Inflows and outflows are much less well documented than stocks (Beauchemin and Lessault, 2014). It is nonetheless often possible to reconstruct arrivals from sub-Saharan Africa in countries of the Global North. Here we look at the figures for two destinations: the United States and France (Figure 15). The data are not entirely comparable,<sup>(79)</sup> but in both cases they show a significant increase in arrivals in the early 2000s, followed by some levelling-off. These situations are doubtless not representative of all flows from sub-Saharan Africa and depend in part on migration policies in the host countries, but they nevertheless undermine the idea of continuous increases in arrivals.

(78) And, to a lesser extent, from Cameroon, DR Congo, Mali, Madagascar, and Guinea.

(79) For France, the data are statistics on the issuance of 1-year residence permits. Shorter stays are thus not included. In the United States, the statistics only include persons who obtained permanent resident status. Arrivals for short periods are thus also not included in these data.

Figure 15. Immigration from sub-Saharan Africa towards the United States and France



Sources: d'Albis and Boubtane (2015) for France; US DHS (2019) for the United States.

Immigration into sub-Saharan Africa from other parts of the world has declined significantly, although it appears to have increased for some groups, in particular Chinese migrants (Cook et al., 2015). This migration has thus far been poorly documented.

### 3. Who migrates to the Global North, and how?

The characteristics of sub-Saharan African moves as well as the circumstances and explanatory factors surrounding their moves vary significantly depending on the countries of origin and destination (Schoumaker et al., 2018). As the data are fragmented, it is difficult to paint a precise overall portrait.

First, sub-Saharan migrants to the Global North often have more formal education than people who remained in their country of origin. Databases on 'brain drain' from the 1990s showed that people with a high level of education were significantly more likely to leave Africa (Artuc et al., 2013). Surveys carried out by the MAFE project in Senegal, Ghana, and the DRC around 2010 confirmed this (González-Ferrer et al., 2018). The higher an individual's level of qualifications, the more likely they are to migrate to Europe. In some countries of origin, the healthcare sector has been particularly affected by these migrations, leading to significant shortages of qualified professionals (Clemens and Pettersson, 2008). The chances of migrating also often increase with the standard of living, as has been shown by the surveys of the MAFE project

(González-Ferrer et al., 2018). And at a macro level, the propensity to emigrate is also stronger in the most developed countries (Flahaux and de Haas, 2015), showing that the expectation that the development of countries of origin will lead to a marked slowdown in emigration is likely somewhat illusory, at least in the short term.

Social capital in the destination country is also crucial. Having family, and more generally networks of social connections, in destination countries facilitates migration and strongly influences the choice of destination (Schoumaker et al., 2018). Moreover, a large proportion of migration from sub-Saharan Africa takes place under family reunification policies. In the United States, for example, more than half of the people from sub-Saharan Africa who obtained permanent resident status in 2017 arrived by this route (US DHS, 2019).

What about forced migration? Asylum migration accounts for a large share of the inflows of people from sub-Saharan Africa into the Global North, reflecting the many situations of conflict, threat, and persecution in the region. In the United States, in 2017, asylum migration made up about a quarter of permanent immigration from sub-Saharan Africa. In Belgium, almost 40% of migrants from French-speaking Africa who were present in 2017 had applied for asylum, and 1 in 5 had obtained refugee status (Demart et al., 2017). In France, just under 40,000 first asylum requests from persons from sub-Saharan Africa were recorded in 2018 (OFPRA, 2018), representing around a third of all asylum requests.<sup>(80)</sup> Refugees also represent a substantial share of international migrants within Africa, around 20% in 2018 (UNHCR, 2018).

So-called irregular migration is by its nature difficult to document. Estimates from various sources show that it is generally common but does not represent the majority of migrations. In the United States, it has been estimated that in 2007, about 20% of sub-Saharan immigrants did not have legal residency status (Capps et al., 2017). According to MAFE surveys carried out in several European countries, around 30% of Congolese (DR Congo) in Belgium and the United Kingdom and 30% of Senegalese in France, Italy, and Spain were ‘undocumented’ during the first year of their stay,<sup>(81)</sup> but these proportions were much lower among migrants overall during the survey in 2009 (16% for Senegalese, 11% for Congolese) (Schoumaker et al., 2018). In France, Lessault and Beauchemin (2009) offer a ‘maximalist’ estimate of 11% of sub-Saharan immigrants in an irregular situation at the end of the 1990s. Research based on the MAFE surveys shows that irregular situations are diverse, that they occur at different times in individual trajectories, and that the factors associated with irregular

(80) In 2018, around a quarter of sub-Saharan African asylum applicants obtained refugee status or subsidiary protection in France (OFPRA, 2018).

(81) This proportion indicates that 30% of persons declared sometime in their first year of residence that they did not have a residence permit.

status are also varied. They are also partly the result of policies that ‘produce irregularity’ (Vickstrom, 2014).

#### 4. Prospects for sub-Saharan African migration

While it is difficult to predict how migration will change over time, a number of elements suggest that the numbers of African migrants in Western countries will continue to increase in the coming decades. Given a constant propensity to emigrate, population growth in Africa would lead to an increase in migration flows. Although in the context of migration policy, improvements in living conditions in sub-Saharan Africa are often seen as a condition for reducing migratory flows, they could, on the contrary, lead to an increase in the propensity to emigrate (Flahaux and de Haas, 2016) and contribute to a growth in flows. Returns may increase in the coming decades, but it is likely that they will remain far below levels of emigration in the short term and that the number of African migrants outside Africa, and especially in Western countries, will continue to grow. However, various researchers argue that the increase should be moderate and gradual (Héran, 2018), contradicting alarmist work on massive immigration from Africa, especially to European countries.

However, prospects for migration are shrouded in many uncertainties. Forced migration is inherently difficult to predict, and it is possible that it will increase if political and security situations deteriorate. Migration for environmental reasons, including global warming, are also likely to increase, as Africa is expected to be strongly affected (Freeman, 2017). But the relationships between environment and mobility are complex; there will be various adaptations to changes in climate; and the effects of climate change on migration, including international migration, are far from obvious (Borderon et al., 2019).

### IX. Population sizes and age structures: trends and projections

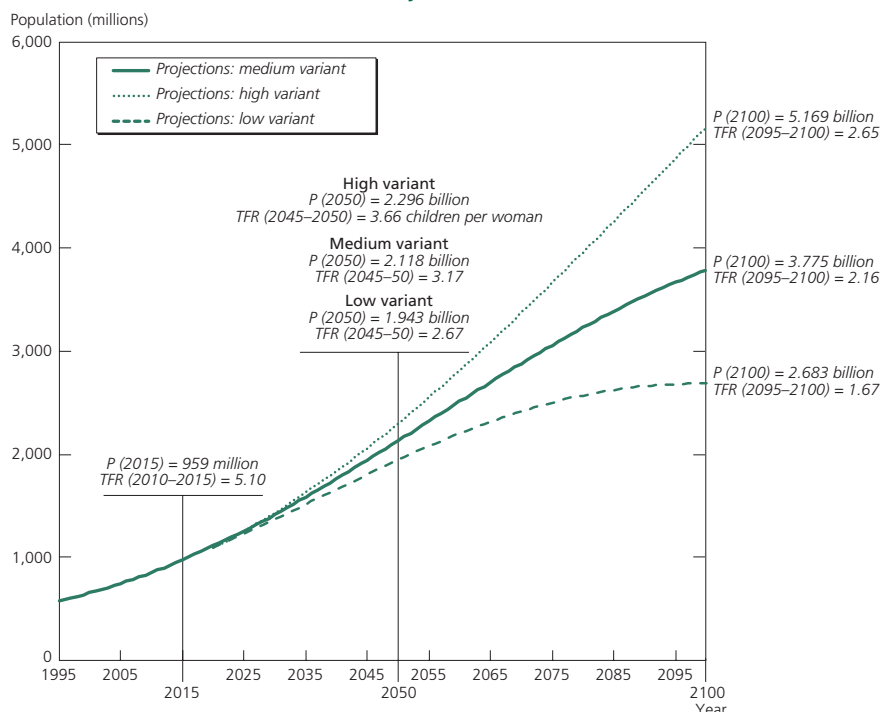
While the estimates for 1995 to 2015 are established, the projections for 2050 and 2100 made by the UNPD in 2019 should be addressed with the necessary caution.<sup>(82)</sup> Appendix Table A.1 shows the trend in population density and size for 47 countries from 1980 to 2050. Appendix Table A.8 shows the population structures of the same countries by large age groups, median age, and dependency ratios in 1980, 2000, and 2020.

(82) A population projection at the national or regional level is based on assumptions of future changes in fertility and mortality. The more fertility decreases rapidly, the greater the changes (slowdown in growth rates and ageing rates). The more long-term the projection, the greater the uncertainty. The United Nations always works according to several assumptions: high (fertility decreases slowly), low (fertility decreases rapidly), and average—the latter being the most reasonable and the one presented here.

## 1. Rapid population growth in Africa throughout the 21st century

Figure 16 illustrates the population trend for sub-Saharan Africa from 1995 to 2015, and then from 2015 to 2050 and 2100 according to the three projection variants used by the United Nations.<sup>(83)</sup>

**Figure 16. Change in population of sub-Saharan Africa under 3 fertility variants, 1995–2100**



**Note:** P: total population; TFR: total fertility rate (mean number of children per woman) over the 5 years preceding the survey.

**Source:** United Nations (2019a).

Population growth was practically stable in sub-Saharan Africa from 1995 to 2015 (at around 2.7% a year; Section II), with the number of inhabitants rising from 561 million to 959 million, for an additional 398 million people in 20 years (+70%). From 1995 to 2020, the population doubled to 1.094 billion—an exceptional increase for a quarter century. Figure 16 shows both the continuation of this growth and, by presenting the three variants, the crucial role played by the trend in fertility between now and 2100, especially from 2050 onwards. If, according to the medium variant, the fertility rate were to decrease from 5.10 children per 1,000 women in 2015 to 3.17 in 2050 and 2.16

(83) For a supplementary review of the recent situation in population projections for the African continent (north and south) for 2050, see also Pilon and Pison (2020). In addition to data, the article is illustrated by maps on fertility, child mortality, growth, population size, migration, and urbanization.

(replacement level) in 2100, the region's population would rise from 959 million in 2015 to 2.1 billion in 2050 (+120% in 35 years) and to 3.8 billion in 2100 (+78% in 50 years). It would more than double in 35 years (2015–2050) and almost double in the ensuing 50 years (2050–2100), ultimately multiplying by 4 in 85 years (2015–2100).

The two other assumptions lead to considerably different increases in the population between now and 2050 and, above all, 2100. The high and most pessimistic variant, assuming a fairly slow decrease in fertility, leads to 178 million more inhabitants than the average variant in 2050 and 1.4 billion more in 2100. The low variant, perhaps the most unlikely (a rapid decline in fertility), slows down the process, with 175 million fewer inhabitants in 2050 than the average variant and 1.1 billion fewer in 2100. But even in this scenario, the population of the region would double between 2015 and 2050. These figures confirm the crucial importance of fertility, and thus of family planning, in the coming population dynamic of the region. For example, between extreme scenarios, a difference of one child per woman in 2050 (3.66 vs. 2.67) leads to a difference of 353 million inhabitants, and a difference of one child in 2100 (2.65 vs. 1.67) to nearly 2.5 billion. Despite the uncertainty, notably for dates further in the future, regardless of the scenario selected, population pressure in sub-Saharan Africa will vary in degree but will be inevitable in the coming decades.

## 2. Only Southern Africa will experience a notable slowdown between now and 2050

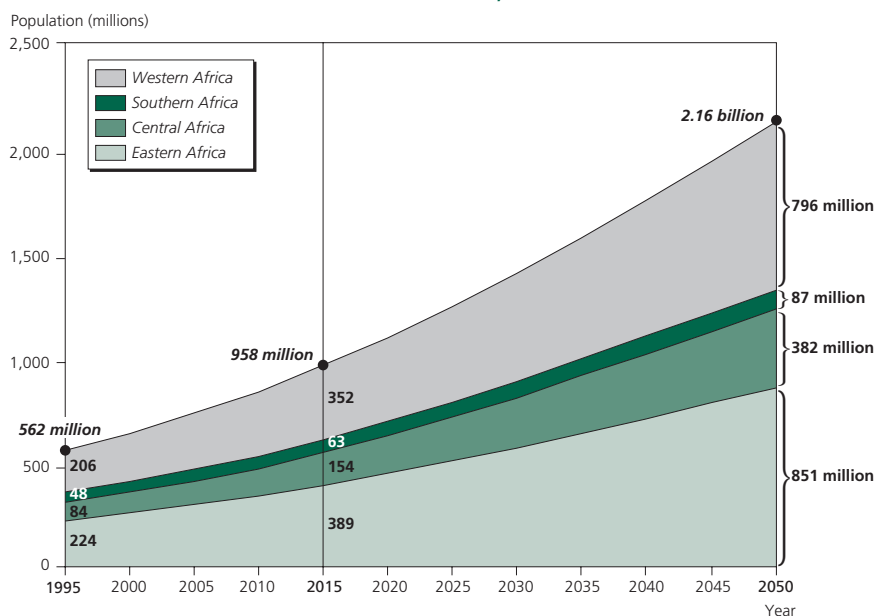
Figure 17 shows the change in the population of the four main sub-Saharan regions between now and 2050 (average variant). The population of Southern Africa increased by just 31% between 1995 and 2015 compared to a 71% increase in Western and Eastern Africa and 83% in Central Africa (Table 2: growth rate differentials from 1995 to 2020). The fertility rate was already lower in Southern Africa in 1995 and fell more rapidly than in the other regions. At the same time, the impact of AIDS on mortality also led to a slowdown in population growth. In the 35 years from 2015 to 2050, the population size will be multiplied by a factor of 2.3 in Western Africa (from 352 million to 796 million), 2.5 in Central Africa (154 million to 382 million), 2.2 in Eastern Africa (389 million to 851 million), and 1.4 in Southern Africa (63 million to 87 million), whose proportion of the region's total population will fall.

## 3. Impressive growth in the most populous countries and the Sahel by 2050 and 2100

Of the 51 countries in sub-Saharan Africa, five accounted for nearly 50% of the total population, both in 1995 and 2015: Nigeria (181 million in 2015), Ethiopia (101 million), DR Congo (76 million), South Africa (63 million), and Tanzania (51 million). Figure 18 shows the probable change in their population sizes by 2050 and the possible change by 2100 (UN average variant). We have



**Figure 17. Change in population size of the 4 subregions of sub-Saharan Africa, 1995–2050**



**Note:** Figures in italics give the total population of the region in 1995, 2015, and 2050. The four other figures give the populations of the four subregions at the same dates. Medium fertility variant from 2015 to 2050.

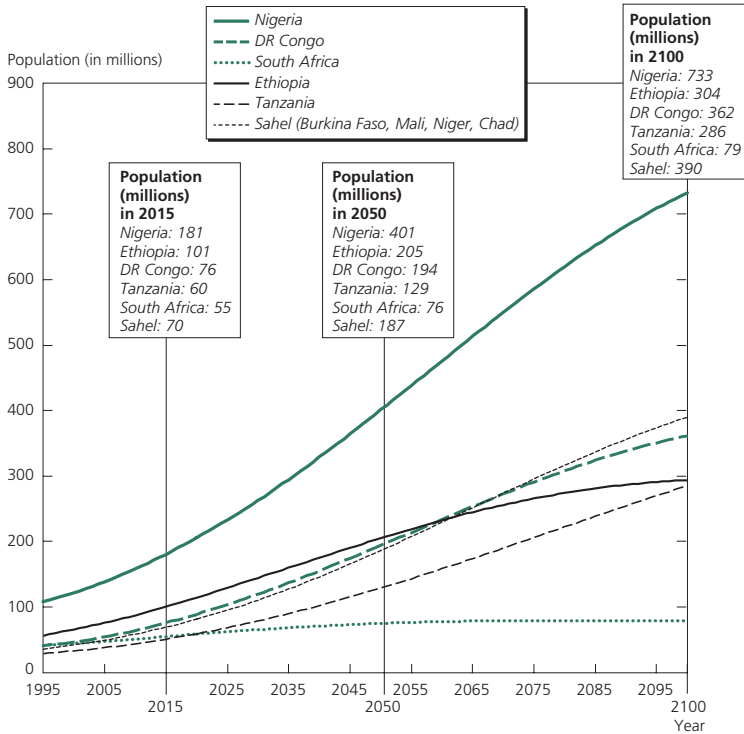
**Source:** United Nations (2019a).

added a group of four Sahel countries, which are still relatively unpopulated but particularly disadvantaged: Mali, Burkina Faso, Niger, and Chad. Excluding South Africa, the population of each of these countries has grown rapidly in the last 25 years, by around 2.8% a year (Table 2).

According to projections, the population of the five most populous countries will rise from 472 million in 2015 to nearly 1 billion in 2050 (by a factor of 2.1) and then to 1.8 billion in 2100 (a factor of 1.8). Their proportion of the region's total population will decrease only slightly, from 48% in 2015 to 47% in 2050 and 45% in 2100. Growth will be meteoric in Nigeria, which will become the world's third most populous country in 2030, and in DR Congo and Tanzania (Figure 18). Only South Africa and, later, Ethiopia will experience a relative stabilization in their populations between now and the end of the century.

Unsurprisingly, given the slow pace of the changes under way, the group of poor Sahel countries will experience the most rapid process and the strongest pressures (with the population nearly tripling between 2015 and 2050 and then doubling between 2050 and 2100). The population of Niger, which has the highest fertility rate and no recent changes, will rise from 20 million in 2015 to 66 million in 2050 and could reach 165 million in 2100 failing an extremely swift reduction in its fertility rate or major international migration. It is hard to imagine this scenario playing out. The populations of Mali and

Figure 18. Change in the populations of the 5 most populous sub-Saharan countries and of 4 Sahelian countries, 1995–2100



Burkina Faso will both increase from around 18 million in 2015 to 44 million in 2050 and 82 million in 2100, more than quadrupling in 85 years.

#### 4. An increasingly African world

As a result of these recent or projected trends, sub-Saharan Africa already stands as a major player in the planet's population. Its relative weight will increase from 13% in 2015 to 22% in 2050 and, if such distant projections may be relied on, 35% in 2100 (United Nations, 2019a, average variant). The region's contribution to the increase in the world population will rise considerably, from 11% between 1960 and 1980 to 16% between 1980 and 2000, 28% between 2000 and 2020, and nearly 50% between 2020 and 2050. From 2050 to 2100, the absolute increase in the African population could be nearly 1.7 billion—from 2.12 billion to 3.78 billion—while the population of the rest of the world will decrease by 52 million, from 7.62 billion to 7.10 billion.

In the three projection scenarios, fertility decreases at varying speeds, but the number of women of childbearing age grows rapidly and constantly, from one generation to the next, a result of the high fertility rates of the last 30 or

40 years. While the estimated number of births worldwide will change very little between 2015 and 2030 (by around 700 million per 5-year period), it will grow rapidly in the sub-Saharan region despite the decline in fertility, with 128 million births in 1995–2000 (20% of world births and a TFR of 5.9), 182 million in 2015–2020 (26%, TFR 4.7), 223 million in 2020–2035 (32%, TFR 3.8) and 255 million in 2035–2050 (36%, TFR 3.2). These figures give an initial idea of the immensity of future needs in mother and infant health.

## 5. Populations that will long be the world's youngest

Because the fertility rate in sub-Saharan Africa is falling more slowly than elsewhere, it was by far the youngest region in the world in 1995 and again in 2015 (Table 15). And it will remain so, the differences with other regions continuing to grow. The median age of the sub-Saharan population will increase from 18.2 today to 23.9 in 2050 compared with 27.7 to 34.9 on average for developing countries. An analysis of the structure by major age groups confirms the exceptional youth of the sub-Saharan population, which will lessen but remain considerable in 2050 (from 43% under-15s in 2015 to 33%). As a corollary, the proportion of adults will increase from 54% to 62% in 2050, while that of seniors (65 and over) will increase from today's 3% to just 5% in 2050. But the number of seniors will rise rapidly. Only Southern Africa, where the fertility

**Table 15. Median ages and age structures by broad age group in the subregions of Africa and the world, 1995, 2015, and 2050**

Subregions	Median age			Percentage aged under 15			Percentage aged 15–64			Percentage 65+		
	1995	2015	2050	1995	2015	2050	1995	2015	2050	1995	2015	2050
Western Africa	17.4	17.9	22.7	45	44	35	52	53	61	3	3	4
Central Africa	17.0	17.0	22.2	46	46	36	51	51	60	3	3	4
Eastern Africa	16.9	18.0	24.9	46	43	32	51	54	63	3	3	5
Southern Africa	20.8	25.8	33.5	38	30	22	58	65	68	4	5	10
Sub-Saharan Africa	17.4	18.2	23.9	45	43	33	52	54	62	3	3	5
North Africa	19.9	24.8	31.1	39	32	26	56	62	64	4	5	11
East Asia	28.1	37.7	48.3	26	17	14	67	72	59	7	11	27
South Asia	21.0	26.0	36.9	38	30	20	58	65	67	4	5	13
Southeast Asia	22.6	28.8	38.4	35	27	19	61	67	65	4	6	16
Latin America	22.9	29.1	41.0	34	26	17	61	66	64	5	8	19
Developing countries	22.9	27.7	34.9	35	28	22	60	66	64	5	6	14
Developed countries	35.8	41.0	46.0	20	16	15	67	66	58	14	18	27
World	25.1	29.6	36.2	31	26	21	62	66	63	7	8	16
<b>Note:</b> Medium fertility variants for projections up to 2050. <b>Source:</b> United Nations (2019a).												

rate has been lower since 1990, will experience a change in age structure close to the average of developing countries.

Naturally, age structures differ from one country to the next, relating to their recent histories (Appendix Table A.8). Excluding South Africa, the age structures of the nine other countries in our sample (Table 16) changed only slightly between 1995 and 2015, but these changes will gather in pace between now and 2050, in line with changes in fertility rates. Excluding the two extremes of Niger (which will remain the world's youngest country) and South Africa (already ageing), the proportion of under-15s, which ranged from 39% (Ghana) to 46% (Burkina Faso) in 2015, will fall but with differences of the same scale, from 29% (Rwanda) to 36% (Tanzania) in 2050. The proportion of people aged 65 and over, low and uniform in 2015 (3%), will vary by a factor of 2 in 2050, from 3%–4% (Niger, Nigeria) to 6%–7% (Kenya, Rwanda). In island countries with a more mature and rapid fertility transition, ageing is much more advanced (for example, the population of Mauritius was composed of 19% of young people and 10% of seniors in 2015).

**Table 16. Median ages, age structures by broad age group, and dependency ratios in 10 African countries, 1995, 2015 and 2050.**

Country	Median age			Percentage aged under 15			Percentage aged 15–64			Percentage aged 65+			Dependency ratio <sup>a</sup> (%)		
	1995	2015	2050	1995	2015	2050	1995	2015	2050	1995	2015	2050	1995	2015	2050
Burkina Faso	16.3	17.0	22.8	47	46	35	50	52	61	3	2	4	100	96	64
Ghana	18.1	20.7	26.9	43	39	30	54	58	64	3	3	6	85	72	56
Niger	15.9	14.9	19.0	48	50	41	50	47	56	2	3	3	100	113	79
Nigeria	17.7	17.9	22.4	44	44	35	53	53	61	3	3	4	88	88	64
Cameroon	16.9	18.3	24.0	46	43	33	50	54	62	4	3	5	100	85	61
Kenya	16.4	19.0	28.1	47	41	28	51	57	66	2	2	6	96	75	52
Rwanda	18.3	19.4	27.2	42	41	29	55	56	64	3	3	7	82	79	56
Tanzania	17.0	17.6	22.3	45	45	36	52	52	59	3	3	5	92	92	69
Zimbabwe	17.6	18.4	26.9	44	43	29	53	55	66	3	3	5	89	82	52
South Africa	21.3	26.4	34.0	37	29	22	59	66	68	4	5	10	69	52	47
Sub-Saharan Africa	17.4	18.2	23.9	45	43	33	52	54	62	3	3	5	92	86	62
World	25.1	29.6	36.2	31	26	21	62	66	63	7	8	16	61	53	59

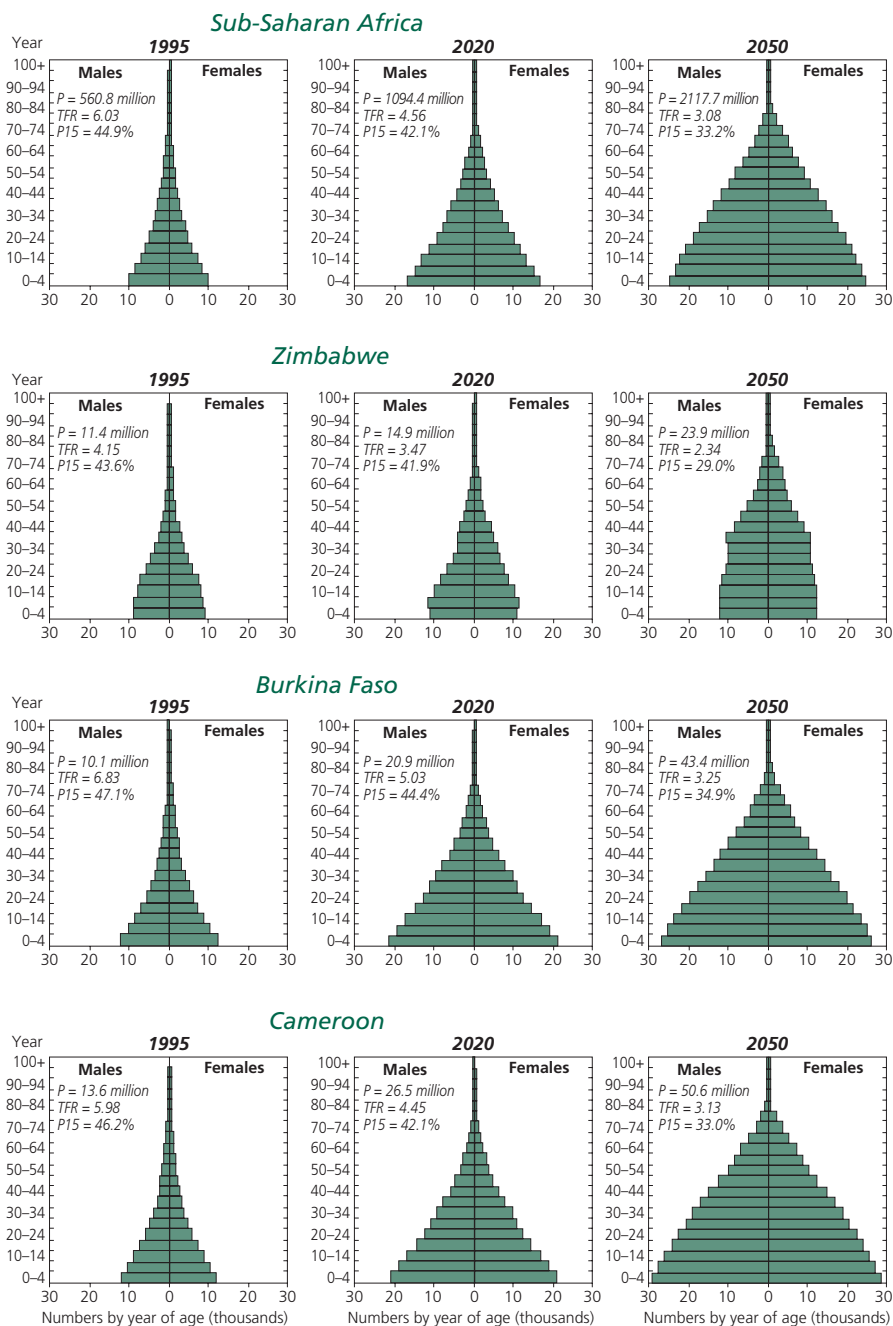
(a) Number of people aged 0–14 and 65+ divided by the number of people aged 15–64.

**Note:** Medium fertility variants for projections up to 2050.

**Source:** United Nations (2019a).

The age pyramids of sub-Saharan Africa as a whole and Zimbabwe, Cameroon, and Burkina Faso in 1995, 2020, and 2050 (Figure 19) illustrate both the growing size of the population and the change in age structures. The region, Burkina Faso, and Cameroon (representative of numerous countries)

Figure 19. Age structure in 1995, 2020, and 2050  
of sub-Saharan Africa, Zimbabwe, Burkina Faso, and Cameroon



Note: P: total population; TFR: total fertility rate (5 years preceding the survey);  
P15: percentage under 15. Medium fertility variant from 2015 to 2050.

Source: United Nations (2019a).

will continue to have a broad pyramid base through 2050, though the adult-age headcount will grow. The fertility rate will fall, but the number of births will remain high for 15 to 20 years, given the increase in the size of the female population arriving at childbearing age. It will then slow gradually, leading to a decrease in the proportion of young people to the benefit of adult ages. Zimbabwe is the only country in which the pyramid base will truly contract (owing to a substantial decline in the number of births), the pyramid assuming a ‘chimney’ shape. With the fertility rate expected to shrink from 3.6 children per woman in 2020 to 2.4 in 2050, the proportion of young people will fall substantially, from 40% to 28%.

## 6. Slow population ageing, but a rapid increase in seniors

While the proportion of seniors will change only at a slow rate between now and 2050, their number is growing rapidly. For the region as a whole, the latter increased 65% between 1995 to 2015, from 17 million to 28 million, and is expected to rise from 28 million to 56 million between 2015 and 2035 (doubling in 20 years), reaching 100 million in 2050 (United Nations, 2019a). Their number will practically quadruple in 35 years (2015–2050) and even quintuple in several countries, including Rwanda. With barely 5% of over-65s in 2050, Nigeria alone will have to address the needs of an elderly population of 16 million, higher than France’s 14 million today. The annual growth rates of over-65s and over-80s will be on average higher than 3% by 2050.

A dual challenge lies ahead in the coming decades: striking a balance between and financing the needs of young people (health, education, employment) and those of their elders (health, pensions, living standard). The living conditions of these elderly populations are precarious, given the widespread absence of generalized retirement systems and minimum pensions.<sup>(84)</sup> Women, with low education levels, are often widowed over 65 years of age, and rural populations are the most vulnerable (Antoine, 2009; Antoine and Golaz, 2010). Seniors continue to depend in most cases on family solidarity (for financial support, housing, or migration to a child’s residence), the fragility and difficulties of which are well known (Sawadogo et al., 2019). In addition, the specific and new health needs of these populations (Maharaj, 2013) are far from being covered, and here, once again, the contribution of family members is essential.

## 7. Differences in structures between urban and rural areas

While the trend in age structures in a country (in relative terms) depends on changes in fertility and mortality,<sup>(85)</sup> two phenomena impact the evolution

(84) See Sajoux et al. (2015) for a description of the diversity of the pension and social protection systems for seniors in sub-Saharan Africa. The share of seniors receiving a pension (of varying amounts) was estimated as a regional average at 17% in 2012, with major differences between countries, ranging from 1% in Sierra Leone to nearly 100% in Mauritius, Botswana, Lesotho, and South Africa.

(85) International migration plays a small role overall.

in differences in structures between places of residence in developing countries. First, the greater maturity and speed of the decrease in fertility in cities are leading to lower numbers of young people than in rural areas and to the start of population ageing via the base of the pyramid. Second, the intensity of migration from rural to urban areas most often concerns young adults, increasing the size of the economically active population in urban environments and reducing it in rural environments. In general, these differences between places of residence shrink over time where decreases in the fertility rate become more widespread.

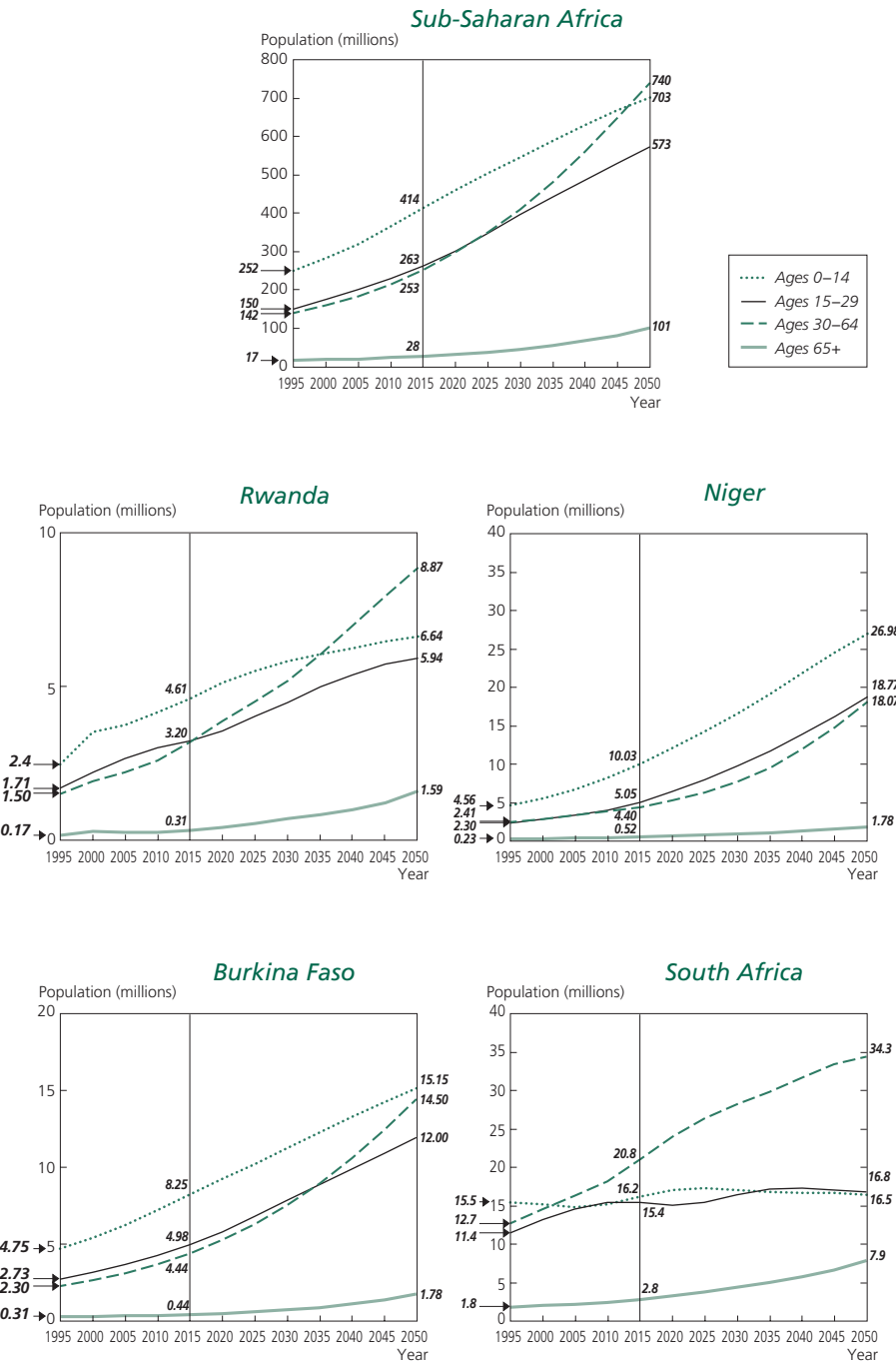
The recent study by Menashe-Oren and Stecklov (2017) on the age structures of 45 sub-Saharan countries from 1980 to 2015 gives an overarching view of the differences between places of residence and their determinants in the recent past. For 2015, it confirms the larger share of young people in rural areas (under-15s representing 46% of the population compared to 39% for urban areas), the higher proportion of the economically active in urban environments, and a lower dependency ratio. The authors show the role of fertility and migration in these differences.

## 8. The coming shift in dependency ratios

The dependency ratio, i.e. the proportion of the population aged 14 and under and 65 and over relative to 15- to 64-year-olds, is a longstanding and somewhat crude measure of the proportion of the economically inactive to that of the economically active.<sup>(86)</sup> For the region as a whole (Table 16), the dependency ratio was high in 1995 (at 92%, or nearly one ‘dependent’ for one ‘economically active’ compared to a world average of 61%), had fallen only slightly in 2015 (86% compared to a world average of 53%), but will fall to 62% by 2050 (two dependents for three economically active individuals). Appendix Table A.8 provides these ratios for 1980, 2000, and 2020 for the region’s 47 countries. The overall demographic burden of young people and seniors will decrease in the coming decades, initially with a gradual decline in the proportion of the former. In our sample of 10 countries—once again with the exception of Niger, where it will remain high (79% in 2050), and South Africa, where it is already much lower (52% in 2015)—the latter proportion in 2050 will range from 52%–56% (in Zimbabwe, Rwanda, Ghana, and Kenya) to 62%–69% (Burkina Faso, Nigeria, and Tanzania). Some see this as an opportunity for economic growth, considering it as a ‘demographic dividend’. Figure 20 shows the diversity of situations likely by 2050. South Africa (and, more broadly, Southern Africa) will soon experience a stagnation in the size of its population of young people and a rapid increase in its economically active population. At the other end of the spectrum, the population sizes of all age groups will continue to grow at a high rate in Niger and, to a lesser extent, Burkina Faso, Chad, Central African Republic, and Eritrea. Meanwhile, the increase in the

(86) As an individual can still be in school after the age of 15 and work after the age of 65.

Figure 20. Change in population size of sub-Saharan Africa and of 4 countries by broad age group, 1995–2050



Source: United Nations (2019a).



population of under-15s in Rwanda, Ghana, and Ethiopia will slow considerably towards 2035; though less substantial than in Western Africa, the increase in young people will nevertheless continue for 20–30 years.

## **X. From dependency ratios to demographic dividends? The challenges between now and 2050**

### **1. Demographic dividends**

Initiated by international bodies such as the United Nations Fund for Population Activities, the World Bank, and various foundations, numerous studies and scientific and political meetings in Africa have in the last 10 years focused on the demographic dividend that the region may experience in the coming decades and its impact on the economy and development.<sup>(87)</sup> The decrease in the fertility rate has led to a lower proportion of young people (economically inactive) and an increase in that of adults (economically active). The reduced economic burden of young people resulting from this shift (in terms of education, health, and nutrition) initially frees up resources, notably financial, that can be used to invest in education, healthcare, and the economy and to increase production, productivity, and the living standards of populations—in short, to achieve economic growth (Moreland and Madsen, 2017; Turbat, 2017). In other words, a rapid transition in fertility would substantially bolster development. But for experts, this ‘demographic window’ (or bonus) would not suffice in itself in most countries, as ‘capturing’ the dividend is not automatic. It must be accompanied by strong and effective policies on the education of young people, the creation of modern jobs, the formation of human capital, and a reduction in unemployment, as accomplished by a few Asian and Latin American countries 30 or 40 years ago.<sup>(88)</sup> But uncertainties persist concerning the capturing of this (prospective) dividend in Africa, as numerous sources of instability (political, economic, financial, and social) weaken this hypothesis in an increasingly globalized and competitive world.

Without going into detail (see, for example, the works referred to in Note 87), most experts are calling for a vigorous and swift strengthening of policies on fertility control (as nothing will be possible without a considerable decrease in fertility), training and jobs for young people, gender equality, and the commitment of political parties. Concluding their work on the demographic dividend in Africa, Groth and May (2017) wrote:

[W]hat is needed at this stage of Africa’s population dynamics is a comprehensive development strategy, a strategy that would be truly demography-informed.

(87) See in particular Groth and May (2017) and Delaunay and Guengant (2019), the proceedings of a symposium held in Paris in 2017. The seventh conference of the Union for African Population Studies held in 2015 was entitled ‘Demographic Dividends in Africa: Prospects, Opportunities, and Challenges’.

(88) The effect of the demographic dividend on economic growth is estimated at between 15% and 30% in several Asian countries, including China, Singapore, Taiwan, and South Korea.

Such a strategy has to take into account economic development, health, social and cultural dimensions, as well as the political and good governance issues. (p. 501)

But how can these goals be achieved in concrete terms, particularly in the most disadvantaged countries and areas of sub-Saharan Africa (the Sahel and parts of Western Africa and Central Africa),<sup>(89)</sup> where health, employment, and education needs are far from being completely covered; where gender inequality and inequalities between social groups and places of residence are persistent if not growing; and where the population of young people and adults is set to more than double in the coming 30 years despite the decline in fertility?

Though interesting in theory, the paradigm of a possible demographic dividend for sub-Saharan Africa, one that has been covered widely in the media, calls for caution. Addressing the continent as a whole and drawing on several economic modelling studies, Cleland and Machiyama (2017) see three reasons for such caution. First, the probable decline in fertility and the corresponding change in age structures may be too slow between now and 2050 to alone generate rapid economic progress. Second, the dichotomy in the modelling between 15- to 64-year-olds (economically active) and younger or older people is a simplification of African realities.<sup>(90)</sup> And third, the relationship between the decrease in fertility and the increase in female employment observed in Asia is less certain in Africa and in any case was not observed between 1990 and 2005 in their work.

These cautionary remarks are not aimed at denying the advantages of a decline in fertility and the change in the age structure but rather at warning against naively optimistic expectations. The continued decreases in fertility in the region are vital to a sustainable future, and the faster they decrease the more beneficial they will be. (Cleland and Machiyama, p. 169)

Pilon (2018) comes to a similar conclusion at the national level but stresses that cities, and capital cities in particular, with their substantially lower fertility rates and lower dependency ratios, already have the demographic conditions theoretically more favourable to capturing this dividend. Lutz et al. (2019) go even further, showing on the basis of simulations on South Korea and Nigeria that the main factor leading to economic growth is not the change in age structures (which would play only a secondary role) but progress on education levels and investments in human capital. If there were to be a demographic dividend, it would be a distant prospect and probably concern only a few countries (Pilon and Pison, 2020).

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(89) See, for example, the tragic observations of May and Guengant (2014) on various problems, such as nutrition, health, food, and production.

(90) Which are more complex in that, in rural areas in particular, numerous young people or seniors work, and also in that school enrolment over the age of 15 is increasing in cities.

## 2. Health, education, employment: sizeable challenges

A simple analysis of the increase in the number of births and populations by major age group from 2015 to 2030 and 2050 (Table 17) gives an initial idea of the corresponding needs and investments: maternal health and prenatal and postnatal care (births), the health of young children (ages 0–4), primary education (ages 5–14), secondary and higher education as well as job-market entry (ages 15–24), adult employment (ages 25–64), and health and dependency (ages 65 and over). The sizes of all age groups will increase considerably between 2015 and 2050, growing in age as the highly numerous generations born before the decrease in fertility gradually reach adult age and beyond: +60% for the 0–4 group (from 157 million to 247 million young children in 35 years), +113% for the 15–24 group (from 189 million to 399 million), +180% for the 25–64 group (from 328 million to 914 million), and +260% for the 65+ group (from 28 million to 101 million).

**Table 17. Births and population size by broad age groups in sub-Saharan Africa, 2000–2050**

	Absolute population size (millions)				Change (%)			
	2000	2015	2030	2050	2000–2015	2015–2030	2030–2050	2015–2050
Births	26	35	44	52	32	23	20	49
Ages 0–4	110	157	199	247	43	27	24	57
5–14	173	257	347	456	48	35	31	78
15–24	128	189	283	399	48	50	41	111
25–64	209	328	524	914	57	60	74	179
65+	19	28	47	101	45	66	118	262
All ages	640	959	1,400	2,118	50	46	51	121
<i>Note:</i> Medium fertility variant.								
<i>Source:</i> United Nations (2019a).								

*Education* has long been recognized as a key variable in the development and formation of human capital (Hugon, 2007; Lutz et al., 2014; Casadella, 2018). Globally, Africa achieved significant progress on education in the 2000s and 2010s (UNESCO, 2015, 2017), with the net primary-school enrolment rate<sup>(91)</sup> having increased from 60% to 78% from 2000 to 2015 (from 82% to 89% in the Southern countries) and the secondary school enrolment rate from 20% to 33% (from 49% to 63% in all Southern countries). Differences with other regions, and among the boys and girls in the region, have declined in primary education but only slightly in secondary and higher education. Strong disparities also remain between countries, places of residence, and social groups (Pilon, 2018). The region is still far from achieving the universal primary

(91) Ratio between the number of students enrolled in a given educational level and belonging to the age group officially corresponding to this level and the population of the age group.

education objective of the UN MDGs for 2015. According to the most recent data (UNESCO, 2018), sub-Saharan Africa in 2016 had the world's highest rate of exclusion from primary and secondary education<sup>(92)</sup> (21% in primary schools and 48% in secondary schools), and girls were the most affected. Of the 63 million children excluded from primary school worldwide, 34 million are African. Compared to 2000–2015, the relative increase in the 5–14 and 15–24 age groups will slow in the future, but the absolute growth in their population size will not decrease between now and 2050 (Table 17). The size of the two age groups will increase by 90 million and 94 million, respectively, from 2015 to 2030 and by a further 107 million and 117 million between 2030 and 2050. In all, the population aged 5–24 will increase by 408 million in 35 years, growing at an annual average rate of 2%, and their education and arrival on the job market will need to be addressed. Most countries have consequential needs in terms of teachers,<sup>(93)</sup> infrastructure (from primary schools to universities), teaching materials, and financing, in addition to the vital requirements of maintaining and, in many cases, improving the quality of education (teacher training, classroom sizes, etc.).

*Health* is the other key element in the development and formation of human capital. As seen earlier, sub-Saharan Africa has made obvious progress on health and in the fight against mortality (notably child mortality) over the last 20 years. But it has only slightly caught up with the rest of the world and remains the most disadvantaged world region. The latest *Atlas of African Health Statistics* (WHO, 2018a) showed that major inequalities exist between countries for all health indicators (Appendix Table A.7) and that the region continues to trail other world regions. Most sub-Saharan African countries have not met the MDGs for 2000–2015, and very few will achieve the SDGs for 2015–2030. Clear progress has been observed, but numerous uncertainties remain. As seen in the current insufficiencies and educational needs yet to be fulfilled, demographic pressure on healthcare systems will grow through at least 2050. In just 35 years (Table 17), the annual number of births (maternal health, prenatal and postnatal treatment) in the region will increase by nearly 50% between 2015 and 2050 (from 35 million to 52 million, at an average annual rate of 1.2%) and that of young children (infant and child health) by 60% (from 157 million to 247 million, an annual 1.4%), while that of adults and the elderly will triple (over 3.5%). According to WHO projections (WHO, 2016), shortages of healthcare personnel (doctors, nurses, and midwives) relative to the already substantial needs of populations could increase between now and 2030 in Africa, while decreasing considerably elsewhere. Addressing the increasingly diverse needs of the population (demand) and considerably increasing personnel and infrastructures

(92) Proportion of children (6–11) and adolescents (12–17) not enrolled in school.

(93) According to UNESCO (2013), 2.1 million new teachers will need to be trained to ensure universal primary coverage in the region by 2030. In secondary education, the number of teachers will need to be increased from 1 million in 2011 to 3.5 million to meet the region's needs.

as well as their quality (supply) will call for large-scale investments that many countries in their current situation will find hard to muster.

The challenge is equally great in *employment*, both in cities and rural areas. The consensus is that, in addition to decreases in the fertility rate and the improvement of human capital (education, health), a ‘demographic dividend’ for Africa will not be achievable without a profound restructuring of the economy. In particular, this will require the creation of formal, salaried, and correctly paid jobs, a diversification of economic activities (industrialization, services), an increase in productive investments, and an improvement in productivity (Beaujeu et al., 2011; ILO, 2018; World Bank, 2019). Though the countries differ (coastal or landlocked, with or without mining and oil resources, differing degrees of urbanization), most of them have a few characteristics in common that distinguish the region from other developing regions. The sub-Saharan population remains rural as a majority (58%, with a growth rate of 3% or higher), and farming (subject to climate risks) often concerns 60% of the economically active population compared to just 10% for the industrial sector. Over 90% of the rural population works in the agricultural sector (though they are increasingly working in other economic activities), and informal employment<sup>(94)</sup> is dominant (with a regional average of 75% of jobs in 2000–2016; 35% in South Africa and Ethiopia; 90% in Côte d’Ivoire, Benin, and Senegal), and labour productivity is relatively low (World Bank, 2019).<sup>(95)</sup> The fertility rate is starting to fall, but demand for jobs is growing in urban and rural areas alike, as the numerous generations born in the 1990s, 2000s, and 2010s enter the working-age population. This demand will slow only slightly between now and 2050. Excluding Southern African countries and a few islands (Mauritius, Seychelles, São Tomé and Príncipe), the 15–24 population size (Table 17) will double between 2015 and 2050 (with annual average growth of 2.3%) and that of working-age adults (25–64) will almost triple (annual average growth of over 3%). In their study of the relationships between the demographic transition and employment in Africa, Beaujeu et al. (2011) estimated that 17 million individuals would enter the working-age population in 2010, 27 million in 2030, and 32 million in 2050.<sup>(96)</sup> And employment in the coming 30 years will not be purely an urban issue. Despite internal migration to cities, which can serve as a ‘safety valve’, the number of rural young people in the region will continue to rise at a brisk pace in the 21st century. For Losch (2012, 2016), new agricultural and local policies are required urgently if we are to prevent economic, political, health, and social crises and instability.

(94) Defined by the World Bank (2019) as a job without a contract, social security, unemployment insurance, health insurance, and trade-union membership.

(95) According to the latest economic report on Africa (United Nations, 2017a), between 2000–2008 and 2009–2014, the growth rate of agricultural productivity on the African continent fell from 9.9% to 4%, that of manufacturing productivity from 7.3% to 3.5%, and that of the services sector from 7.5% to 3%.

(96) Minimum figures, as since 2011 population growth on the continent has been revised upwards.

### 3. A new measurement of human capital: what is the situation in Africa?

In its latest report on world development (2019) focused on the changing nature of work, the World Bank places a priority on the formation of human capital as a source of future productivity growth and social progress. To make comparative measurements between countries and raise political awareness, it has devised a new Human Capital Index with a view to measuring the future productivity of an individual born in a given year.<sup>(97)</sup> This index provides a relative projected estimate of the productivity of the future generation of workers relative to an ideal benchmark (complete education and perfect health) ranging from 0 to 1. Calculated for 157 countries, in 2018 this index ranged from 0.84 (Japan, South Korea, Singapore) to 0.30 (Chad, South Sudan). In the initial rankings compiled by the World Bank, 41 of the lowest-rated 50 countries are African—the Sahel countries, Nigeria, and Côte d'Ivoire being the worst ranked. Only Seychelles and Mauritius, along with Kenya, achieve an honourable ranking. As even the World Bank admits, this type of indicator should always be taken with caution (given the variability of the information required for its construction depending on the country), but as with the HDI of the United Nations Development Programme (UNDP), it nevertheless serves to attract the attention and raise the awareness of citizens, public authorities, international bodies, and NGOs of the urgency of the necessary reforms and policies on the formation of human capital. Regularly updated, the Human Capital Index will help to monitor progress, especially in Africa.

## XI. Synthesis and research priorities

This second *Population* chronicle devoted to sub-Saharan Africa in the 2000s and 2010s follows on from the 2004 article that covered the period 1950–2000. We have described the population dynamics of the region's 47 countries and four subregions, identifying the recent characteristics of their diverse components and the changes that have occurred between 2000 and 2020. How have population growth, marriage, family, fertility, mortality, migration, and urbanization evolved in the region over the last 20 years? Has the demographic transition in sub-Saharan Africa caught up with that of other world regions? How are spatial inequalities (between countries) and social inequalities (education, place of residence, standard of living) evolving within each country? We have also outlined the prospects up to 2050 and

(97) The index comprises three components: survival (chances of reaching the age of 5), education (number of school years expected before the age of 18 and the number of quality education years), and health (per cent of normal-sized children, adult-age survival rate) to be combined in a single index. It measures the contribution of various components to the future productivity expected of the work of an individual born in 2018 relative to a benchmark of complete education and perfect health (World Bank, 2019).

the end of the century and the challenges that they bring to light. This study, already ambitious in scope, applies a mainly descriptive demographic approach based on the most recent literature and the most reliable statistical information, including data on 47 countries published by the UNPD in 2019 for our assessment of trends and geographical disparities at the regional level, and the DHS surveys from the 1990s and 2010s for the determinants of marriage, fertility, and mortality (39 countries). Ten of these countries, representative of the diverse range of situations in Africa, were selected to examine changes in social inequalities within countries. Our study is limited to an assessment of how many, when, where, and how, without going into the highly complex question of *why*. Such an endeavour would call for an analysis of the diverse African situations on multiple levels (individual, community, aggregate), looking at the respective roles of cultures, religions, policies, conflicts, crises, etc. Existing explanatory or theoretical frameworks would also need to be revised and expanded. While far beyond the scope of our overview, this question deserves a major study in its own right. The major changes that have occurred since the late 1990s are detailed below, along with some suggestions for further research.

1. Sub-Saharan Africa is entering the second phase of the demographic transition model, in which fertility decline follows on from mortality reduction. But given the high and steady rate of population growth over the last 20 years (almost 2.7% annually from 1997 to 2017), stemming from an almost identical absolute decrease in birth rates (from 42 to 36 per 1,000) and death rates (from 16 to 9 per 1,000), this phase is just beginning. This rapid pace of regional population growth, unequalled elsewhere in the world over the last 30 years, remains exceptional in the history of humankind. Excepting South Africa or small island countries with very slow growth (below 1%), the rate of increase ranges across countries from 2.2% (Ghana, Kenya, Zimbabwe) to 3% (Burkina Faso, Tanzania, Chad) or higher (DR Congo, Niger, Uganda, Mali, Angola, Somalia).
2. Given the pace of growth, population numbers in the region are increasing very rapidly. Between 1995 and 2020, population size doubled in just 25 years (from 561 million to 1.1 billion) and, according to the most reasonable projections, could reach 2.1 billion by 2050 and 3.8 billion by 2100 despite a projected reduction in fertility (from 5.1 children per woman in 2015 to 3.2 in 2050 and 2.2 in 2100). Only in Southern Africa will there be a notable slowdown between now and 2050. The share of the world population living in sub-Saharan Africa is thus set to rise from 14% in 2020 to 22% in 2050 and, with all the uncertainty linked to such a distant projection, may well reach 35% by 2100. Its contribution to world population increase is also forecast to rise from 28% between 2000 and 2020 to 50% between 2020 and 2050. Despite their diversity, a large majority of countries in the region experienced accelerating population growth and densification (inhabitants



per km<sup>2</sup>) between 2000 and 2020, and this trend will continue in years to come. However, to analyse the relationship between population pressure, agricultural resources, and food security, this densification must be measured in relation to the surface areas of existing or potential arable land.

3. With higher fertility than elsewhere, these sub-Saharan populations are, and will remain, the youngest in the world. At present, in most sub-Saharan countries, the median age is between 18 and 19 years and should reach 24 by 2050. By comparison, median age in the developing regions as a whole will increase from 29 to 35 years. While the proportion of older adults is low in sub-Saharan Africa (3%–4% circa 2020) and will increase slowly, their numbers are growing rapidly as ever larger birth cohorts reach age 65. Further research is needed on the levels and causes of morbidity and mortality among this ageing population and on the living conditions of older adults, their intergenerational relations, and support networks. It is also important to learn more about the cohorts aged 18–29 who will drive future growth in these countries, and to better understand their behaviours and ideals in relation to sexuality, fertility, and gender relations.
4. Nuptiality in the region is changing in a variety of ways. Marriage or union is still the predominant norm at adult ages, and excepting some countries of Southern Africa, permanent singlehood is rare among women (3%) and men (4%). But entry into union occurs later than in the 1990s, at a median age of 18–19 years for women in a majority of countries (from 16 in Niger to above 25 in South Africa) and 26–28 years for men. While the prevalence of early marriage is decreasing, a high proportion of women in sub-Saharan Africa marry before age 18 (ranging from 76% in Niger to 25% in Kenya and Ghana and 8% in Rwanda). Age differences between spouses are still among the highest in the world (between 5 and 9 years) and have remained relatively stable. While the prevalence of polygamy is declining, it remains high in Western Africa (35%–45% of women in a union) and Central Africa (around 25%). It is increasingly concentrated in the most disadvantaged social groups and in rural areas. Divorce seems to have remained stable in the 2010s. Further research is needed to understand the causes, circumstances, and consequences of early marriage, union dissolution and polygamy, and the new modes of dating and couple formation being adopted by the younger generations
5. Household size—linked to fertility and mortality levels, intensity of child fosterage and polygamy, and to residence rules—has fallen only slightly over the last 2 decades, ranging from an average of around four people (Ghana, Kenya, Rwanda, Zimbabwe) to more than six in Sahelian Africa (Niger, Chad, Senegal). The proportion of female household heads has remained stable (increasing slightly in some cases) and ranges from 10%–20% (Niger, Burkina Faso, Nigeria) to more than 30% (Ghana, Rwanda, Kenya) or even 40% (Zimbabwe). Female household heads should be studied more



fully to shed light on the causes and consequences of their status and on the incomes and activities of the women concerned. The fostering of children, for its part, remains widespread in both urban and rural areas, at levels that are stable or increasing slightly. Last, new family living arrangements and new forms of solidarity are emerging in cities among the most culturally and economically advantaged social groups and the younger generations. The situation in rural areas deserves greater attention.

6. Although starting later than elsewhere in the world in most countries, the fertility transition has now begun in sub-Saharan Africa. The first notable decline in fertility has been observed, with a decrease from 5.9 children per woman in around 1997 to 4.7 in 2017. Despite the diversity of situations, it is still the highest in the world. The region includes countries with late and modest decline and a current fertility rate of more than 5.5 children, such as the Sahelian countries, Uganda, Nigeria, and DR Congo; countries that pioneered the transition in the 1980s and now have around 3.5 children per woman, such as Kenya, Ghana, and the countries of Southern Africa; and countries with recent but rapid decline, such as Rwanda and Ethiopia, where fertility has fallen from above 6 to 4 children per woman in just 20 years. A few countries, often island states, already have low fertility (2 children). At macro level (47 countries), we observe, as in 2004, a fairly close correlation between fertility and the HDI. However, sub-Saharan Africa counts one additional child on average compared to countries with an equivalent HDI elsewhere in the world, a difference attributed to higher child demand and lower contraceptive prevalence. Overall, people's ideal number of children (often above 4 children per woman) is falling only slowly. Contraceptive prevalence (modern methods) has increased everywhere since 2000, rising from a regional average of 10% to 27%, although this level is only half that observed in other developing regions of the world. Regarding fertility timing, age at childbearing has increased only marginally in most countries, and adolescent fertility remains high. Overall, fertility differentials across social groups (education, living standard) or place of residence follow a social gradient: the higher the levels of women's education, percentage urban, and standard of living, the greater the prevalence of contraceptive use and the lower the ideal family size and fertility rate. The explanatory analysis of fertility differentials between countries and social groups deserves to be developed more fully.
7. Mortality in sub-Saharan Africa has declined remarkably in recent years. After 2 decades of slow progress, sometimes even stagnation or regression (political conflicts and AIDS in the 1980s and 1990s), progress has clearly resumed. From 1997 to 2017, mean life expectancy in the region increased by 11 years (from 49.4 to 60.5 years), the world's fastest increase in the early 21st century. Sub-Saharan Africa is catching up with other world regions, but the gap remains large (9 years, for example with respect to South Asia).

There are also large inequalities within the continent, with a gap of 7 years between Western Africa (57 years) and East and Southern Africa (64 years) in 2017, and 13 years between Côte d'Ivoire or Nigeria (54 years) and Senegal or Ethiopia (67 years). Three-quarters of the increase in life expectancy is due to progress in child mortality (0–5 years), which has halved in the last 20 years. However, despite advances in this area, the region accounts for an increasing share of child deaths in the world (31% in 1990 and 51% in 2016). While substantial progress in reducing infant and child mortality has been achieved since 1990, adult mortality has fallen much more slowly than elsewhere. This can be attributed to several factors: AIDS, the prevalence of which is high in certain countries, notably in Southern Africa and among young women aged 15–24; poor reproductive health, as reflected in high maternal mortality (though levels are falling); illegal and unsafe abortion; political conflict; and the emergence of non-communicable diseases. Social inequalities in mortality are well documented for children, with a strong advantage for those living in urban areas and belonging to the most affluent social groups. Health will remain an important issue everywhere, and the challenge is now twofold: to pursue the fight against infectious diseases while addressing the increase in non-communicable diseases. Analysis of urban civil registration data and of health information systems, where their quality is good, would shed new light on poorly understood circumstances and causes of death.

8. Despite a rapidly increasing percentage of the urban population (31% in 2000, 41% in 2020), sub-Saharan Africa, alongside South Asia, is still the world's least urbanized region. Large disparities exist between the subregions, however. Eastern Africa is still very rural (29% of urban dwellers), Southern Africa is already highly urbanized (65%), and the two other regions lie between the two extremes (around 50%). This variation in percentage urban is even more pronounced between countries, ranging from below 17% (Burundi, Rwanda, Malawi, Niger) to more than 68% (Angola, Botswana, Gabon). The number of urban dwellers in the region has more than doubled in the last 20 years (202 million in 2000, 459 million in 2020) and could double again by 2040 according to the latest UN projections, which have already been revised downwards to take account of an observed slowdown in migration to cities and/or an increase in returns to rural areas. Today, urban growth is due more to natural population increase in the cities than to migration. While secondary cities account for a large share of the urban population increase, the number of African cities with more than 1 million inhabitants is increasing (from 17 in 1990 to 54 in 2020) and the region's megacities are growing fast. Lagos and Kinshasa topped 14 million in 2020 (a doubling in 20 years), while Luanda (8.3 million) and Dar es Salaam (6.7 million) have tripled in size since 2000. All these cities will continue to expand. The possible future slowdown of migration inflows will by no means suffice to overcome

the major challenge—housing, pollution, water and power supply, transport, security, and more—facing urban society today.

9. International migration (flows, factors, migrant characteristics) is always difficult to quantify in demography. Censuses provide a means to measure migrant stocks (numbers of individuals living in a country other than their country of birth) at an instant in time, and surveys (rare in Africa) can be used to estimate some types of flow. The 25 million sub-Saharan Africans living outside their country of birth in 2017 represented 2.5% of the region's population and less than 3.4% of migrants worldwide. That said, after a period of stability from 1990 to 2000, their number (in terms of stocks) has increased sharply in recent years, from 15 million to 25 million between 2000 and 2017. While most migration still takes place within Africa, migrant destinations are becoming more diverse. Europe is still by far the leading non-African destination, followed by North America, with a rapid increase in flows since 2000. The destinations of migrants in Europe are changing, however. While France and the United Kingdom are still the main receiving countries, flows to other countries, such as Italy, Spain, the Netherlands, and Germany, are increasing. The causes of migration within Africa or to other destinations are becoming more diverse and are linked to the economic, social, and political situations in the migrants' countries (or regions) of origin and to immigration policies in receiving countries. Migrants may decide to leave their country for economic or environmental reasons; as asylum seekers or refugees; or to join their families abroad. What is the outlook for the future? Net flows will probably increase (more departures than returns), but the latest available data suggest that they will remain smaller than certain scaremongers would have us believe. More research on international migration is needed, in both origin and destination countries, to measure migrant flows and the causes, circumstances, and consequences of migration.
10. What are the challenges to be addressed, today and in the future? Education, health, and employment are key components of sustainable development and human capital formation in a region or country and are drivers of change in population dynamics. Given the forecast population growth in most countries of sub-Saharan Africa over the next 30 years, the challenge of meeting future needs is immense. With the rapid growth between 2015 and 2050 in numbers of births (+50%), children (+60%), adolescents (+81%), young adults (+113%), adults (+180%), and older adults (+260%), immense efforts will be necessary not only to improve the existing situation but also to meet the specific future needs of these groups in terms of health, education, employment, housing, and elder care. True, fertility will decline between now and 2050, but the very large cohorts of the 1990s, 2000s, and 2010s will swell the ranks of the successive age groups as they grow older. Experts agree that the arrival of a 'demographic dividend' (decrease in the proportion

of children and increase in that of working-age adults) in the 2030s will not in itself be sufficient to drive economic growth and foster sustainable development. As of today, it must be preceded and accompanied by major investments in reproductive health, education (from primary to university levels), and employment (industry, agriculture, and services). Human capital formation, a source of future productivity, is a key component of this necessary transformation.



## STATISTICAL APPENDIX

**Table A.1. Population densities (2000–2020) and numbers (1980–2050) in 47 African countries**

Subregion and country	Surface area <sup>(a)</sup> (thousand km <sup>2</sup> )	Density		Population size (thousands)					
		2000	2020	1980	1990	2000	2010	2020	2050
<b>Western Africa</b>	6,138	38	65	137,799	180,535	234,749	307,040	401,861	796,494
Benin	113	61	107	3,717	4,978	6,866	9,199	12,123	24,280
Burkina Faso	274	42	76	6,823	8,811	11,608	15,605	20,903	43,432
Cape Verde	4	107	139	284	338	428	493	556	679
Côte d'Ivoire	322	51	82	8,034	11,925	16,455	20,533	26,378	51,264
Gambia	11	120	220	637	956	1,318	1,793	2,417	4,882
Ghana	239	81	130	11,056	14,773	19,279	24,780	31,073	52,016
Guinea	246	33	53	4,871	6,352	8,241	10,192	13,133	25,972
Guinea-Bissau	36	33	55	782	975	1,201	1,523	1,968	3,557
Liberia	111	26	46	1,853	2,076	2,848	3,891	5,058	9,340
Mali	1,240	9	16	7,090	8,450	10,946	15,049	20,251	43,586
Mauritania	1,026	3	5	1,541	2,034	2,630	3,494	4,650	9,025
Niger	1,267	9	19	5,989	8,027	11,332	16,464	24,207	65,593
Nigeria	924	132	223	73,424	95,212	122,284	158,503	206,140	401,315
Senegal	197	50	85	5,583	7,526	9,798	12,678	16,744	33,187
Sierra Leone	72	64	111	3,388	4,320	4,585	6,416	7,977	12,945
Togo	57	86	145	2,721	3,774	4,924	6,422	8,279	15,416
<b>Central Africa</b>	6,613	15	27	52,885	70,855	96,116	131,622	179,595	382,640
Angola	1,247	13	26	8,341	11,848	16,395	23,356	32,866	77,420
Cameroon	475	33	56	8,621	11,780	15,514	20,341	26,546	50,573
Central African Republic	623	6	8	2,199	2,807	3,640	4,387	4,830	8,401
Chad	1,284	7	13	4,514	5,963	8,356	11,952	16,426	34,031
Congo	342	9	16	1,778	2,357	3,127	4,274	5,518	10,702
Congo (DR)	2,345	20	38	26,359	34,612	47,106	64,564	89,561	194,489
Gabon	268	5	8	726	949	1,228	1,624	2,226	3,809
Equatorial Guinea	28	22	50	250	419	606	944	1,403	2,821
São Tomé and Príncipe	1	142	219	96	119	142	180	219	394

**Table A.1 (cont'd). Population densities (2000–2020) and numbers (1980–2050) in 47 African countries**

Subregion and country	Surface area <sup>(a)</sup> (thousand km <sup>2</sup> )	Density		Population size (thousands)					
		2000	2020	1980	1990	2000	2010	2020	2050
<b>Eastern Africa</b>	7,006	37	64	146,488	197,168	257,353	339,318	445,406	851,218
Burundi	28	228	425	4,157	5,439	6,379	8,676	11,891	25,325
Comoros	2	271	435	308	412	542	690	870	1,472
Djibouti	23	31	43	359	590	718	840	988	1,295
Eritrea	118	19	30	1,733	2,259	2,292	3,170	3,546	6,005
Ethiopia	1 104	60	104	35,142	47,888	66,225	87,640	114,964	205,411
Kenya	580	55	93	16,417	23,725	31,965	42,031	53,771	91,575
Madagascar	587	27	47	8,717	11,599	15,767	21,152	27,691	54,048
Malawi	118	94	162	6,250	9,404	11,149	14,540	19,130	38,143
Mauritius	2	593	636	966	1,056	1,185	1,248	1,272	1,186
Mozambique	802	22	39	11,630	12,987	17,712	23,532	31,255	65,313
Rwanda	26	305	498	5,153	7,289	7,934	10,039	12,952	23,048
Somalia	638	14	25	6,281	7,225	8,872	12,044	15,893	34,922
South Sudan	644	10	17	4,503	5,493	6,199	9,508	11,194	19,963
Tanzania	945	35	63	18,538	25,204	33,499	44,347	59,734	129,387
Uganda	241	98	190	12,442	17,354	23,650	32,428	45,741	89,447
Zambia	753	14	24	5,852	8,037	10,416	13,606	18,384	39,121
Zimbabwe	391	30	38	7,409	10,432	11,881	12,698	14,863	23,948
<b>Southern Africa</b>	2,675	76	100	32,440	42,046	51,444	58,383	67,504	87,379
Botswana	582	3	4	898	1,287	1,643	1,987	2,352	3,510
Eswatini	17	59	68	588	822	1,005	1,065	1,160	1,704
Lesotho	30	68	71	1,340	1,704	2,033	1,996	2,142	2,665
Namibia	824	2	3	1,058	1,433	1,795	2,119	2,541	3,981
South Africa	1,221	37	49	28,557	36,801	44,968	51,217	59,309	75,518
<b>Total sub-Saharan Africa</b>	20,432	31	54	369,614	490,605	639,661	836,364	1,094,366	2,117,731
(a) The surface areas are taken from G. Pison, 2019, The population of the world, <i>Population &amp; Societies</i> 569, September.									
<b>Note:</b> United Nations medium variant for projections.									
<b>Source:</b> United Nations, (2019a).									

Table A.2. Changes in birth and death rates and rates of natural increase, from 1960–1965 to 2015–2019, 47 countries

Subregion and country	Birth rate (per 1,000)						Death rate (per 1,000)						Rate of natural increase (%) <sup>(a)</sup>					
	1960– 1965	1970– 1975	1980– 1985	1990– 1995	2000– 2005	2015– 2020	1960– 1965	1970– 1975	1980– 1985	1990– 1995	2000– 2005	2015– 2020	1960– 1965	1970– 1975	1980– 1985	1990– 1995	2000– 2005	2015– 2020
<b>Western Africa</b>																		
Benin	47.6	47.7	47.0	44.2	42.6	37.4	26.0	22.3	18.5	17.0	15.6	10.3	2.2	2.5	2.8	2.7	2.7	2.7
Burkina Faso	45.3	47.0	47.2	45.3	41.5	36.4	27.6	22.5	18.6	13.7	12.1	9.0	1.8	2.4	2.9	3.2	2.9	2.7
Cape Verde	47.2	47.5	49.0	47.1	45.6	38.2	27.5	23.7	18.1	16.9	14.6	8.3	2.0	2.4	3.1	3.0	3.1	3.0
Côte d'Ivoire	47.0	40.6	42.1	38.1	25.9	19.7	19.4	13.5	9.8	7.9	5.9	5.6	2.8	2.7	3.2	3.0	2.0	1.4
Gambia	53.3	50.8	46.8	42.5	40.3	35.9	26.3	18.9	14.4	13.4	15.0	10.2	2.7	3.2	3.2	2.9	2.5	2.6
Ghana	48.3	47.3	46.5	46.2	42.0	38.8	30.2	22.9	16.7	13.6	10.6	8.0	1.8	2.4	3.0	3.3	3.1	3.1
Guinea	47.7	45.2	42.4	38.7	34.5	29.6	17.8	15.4	13.2	10.3	10.1	7.3	3.0	3.0	2.9	2.8	2.4	2.2
Guinea-Bissau	45.6	45.9	48.6	47.3	43.1	36.6	28.7	26.3	22.2	16.4	15.0	8.5	1.7	2.0	2.6	3.1	2.8	2.8
Liberia	42.0	43.5	50.1	45.5	41.2	35.4	25.1	22.8	21.0	17.7	14.2	9.7	1.7	2.1	2.9	2.8	2.7	2.6
Mali	48.8	48.7	48.3	44.2	41.7	33.2	28.8	23.6	19.1	19.1	14.0	7.6	2.0	2.5	2.9	2.5	2.8	2.6
Mauritania	50.1	50.4	49.4	48.9	48.7	41.8	36.3	30.1	23.6	19.9	16.8	9.8	1.4	2.0	2.6	2.9	3.2	3.2
Niger	48.5	45.6	42.6	39.4	37.7	33.9	18.6	15.0	11.8	9.6	9.2	7.3	3.0	3.1	3.1	3.0	2.9	2.7
Nigeria	58.3	56.4	56.8	55.2	52.7	46.3	28.9	28.0	25.2	21.7	15.8	8.4	2.9	2.8	3.2	3.3	3.7	3.8
Senegal	46.2	46.9	46.4	43.8	43.0	38.1	25.3	22.0	18.8	18.5	17.3	12.0	2.1	2.5	2.8	2.5	2.6	2.6
Sierra Leone	50.3	49.6	47.6	41.7	38.7	34.7	25.5	23.2	15.3	11.1	10.1	5.8	2.5	2.6	3.2	3.1	2.9	2.9
Togo	47.5	47.6	47.6	46.1	43.2	33.7	31.7	27.4	24.4	26.0	21.2	11.9	1.6	2.0	2.3	2.0	2.2	2.2
	47.7	48.3	46.1	40.3	39.8	33.3	22.7	17.8	13.9	11.8	12.5	8.6	2.5	3.0	3.2	2.8	2.7	2.5
<b>Central Africa</b>																		
Angola	45.8	46.6	46.8	46.1	45.2	39.9	23.3	20.1	17.7	16.5	15.2	9.5	2.3	2.7	2.9	3.0	3.0	3.0
Cameroon	48.2	51.3	50.4	49.8	47.8	40.9	26.4	22.4	20.1	19.5	16.8	8.3	2.2	2.9	3.0	3.0	3.1	3.3
Central African Republic	43.3	45.0	46.5	43.7	41.2	35.6	21.5	18.2	15.1	14.3	13.8	9.4	2.2	2.7	3.1	2.9	2.7	2.6
Chad	43.2	42.1	42.5	41.5	41.1	35.4	27.1	21.2	16.9	17.2	19.1	12.4	1.6	2.1	2.6	2.4	2.2	2.3
Congo	45.6	48.1	50.0	51.3	50.3	42.4	25.8	22.5	20.3	18.7	17.3	12.2	2.0	2.6	3.0	3.3	3.3	3.0
Congo (DR)	43.1	43.9	40.5	37.9	38.5	33.1	17.9	14.6	11.9	11.9	12.2	6.8	2.5	2.9	2.9	2.6	2.6	2.6
Gabon	46.8	46.4	46.3	46.1	45.8	41.4	22.3	19.7	18.0	16.3	14.7	9.6	2.5	2.7	2.8	3.0	3.1	3.2
Equatorial Guinea	33.9	37.1	38.4	36.7	32.7	32.0	25.0	19.2	13.7	11.1	11.7	6.9	0.9	1.8	2.5	2.6	2.1	2.5
São Tomé and Príncipe	40.6	41.9	43.4	41.6	40.6	33.5	27.1	26.3	18.6	16.4	13.0	9.4	1.4	1.6	2.5	2.5	2.8	2.4
	47.1	40.9	41.0	39.7	39.6	31.8	16.9	12.8	10.9	10.9	8.1	4.9	3.0	2.8	3.0	2.9	3.2	2.7



Table A.2 (cont'd). Changes in birth and death rates and rates of natural increase, from 1960–1965 to 2015–2020, 47 countries

Subregion and country	Birth rate (per 1,000)						Death rate (per 1,000)						Rate of natural increase (%) <sup>(a)</sup>					
	1960–1965	1970–1975	1980–1985	1990–1995	2000–2005	2015–2020	1960–1965	1970–1975	1980–1985	1990–1995	2000–2005	2015–2020	1960–1965	1970–1975	1980–1985	1990–1995	2000–2005	2015–2020
<b>Eastern Africa</b>																		
Burundi	48.7	48.4	47.5	44.4	41.6	34.2	21.9	18.9	17.1	16.9	13.4	6.9	2.7	2.9	3.0	2.8	2.8	2.7
Comoros	48.4	47.7	51.4	47.9	42.8	39.3	22.5	20.5	18.5	17.5	13.4	8.0	2.6	2.7	3.3	3.0	2.9	3.1
Djibouti	47.2	45.2	46.0	40.8	36.9	32.1	22.4	18.3	14.6	10.7	9.4	7.3	2.5	2.7	3.1	3.0	2.7	2.5
Eritrea	44.2	44.8	40.8	38.9	30.1	21.7	17.4	14.0	11.9	11.0	10.2	7.1	2.7	3.1	2.9	2.8	2.0	1.5
Ethiopia	48.4	46.0	45.2	38.4	34.6	30.6	23.6	19.8	17.3	15.1	10.6	7.2	2.5	2.6	2.8	2.3	2.4	2.3
Kenya	48.0	48.6	49.3	46.6	41.5	32.6	23.5	21.0	21.5	17.3	12.7	6.7	2.4	2.8	2.8	2.9	2.9	2.6
Madagascar	50.9	51.0	48.6	40.4	39.2	28.9	18.5	14.1	10.5	10.7	12.1	5.5	3.2	3.7	3.8	3.0	2.7	2.3
Malawi	48.4	47.9	45.2	44.1	39.5	32.8	23.8	19.7	16.3	14.1	9.2	6.1	2.5	2.8	2.9	3.0	3.0	2.7
Mauritius	51.8	51.9	50.9	45.8	43.3	34.3	27.4	24.3	20.7	18.7	17.4	6.8	2.4	2.8	3.0	2.7	2.6	2.7
Mozambique	43.8	26.8	20.3	20.4	16.0	10.2	8.6	6.8	5.9	6.1	6.7	8.3	3.5	2.0	1.4	1.4	0.9	0.2
Rwanda	46.6	47.1	46.2	45.1	44.3	37.7	23.6	22.8	21.4	19.1	15.5	8.6	2.3	2.4	2.5	2.6	2.9	2.9
Somalia	50.4	51.0	53.2	44.8	38.0	32.1	21.9	20.1	16.2	47.2	14.6	5.3	2.9	3.1	3.7	-0.2	2.3	2.7
South Sudan	47.4	46.0	44.4	49.6	47.5	41.9	25.8	22.2	19.0	20.0	14.9	10.9	2.2	2.4	2.5	3.0	3.3	3.1
Tanzania	50.9	49.9	47.5	46.5	41.5	35.2	31.5	27.1	24.2	19.3	15.2	10.6	1.9	2.3	2.3	2.7	2.6	2.5
Uganda	48.9	47.7	45.8	43.1	41.7	36.9	20.2	17.4	15.3	15.0	12.5	6.5	2.9	3.0	3.0	2.8	2.9	3.0
Zambia	48.8	48.4	49.3	49.8	47.8	38.4	19.1	16.5	16.2	18.6	14.4	6.7	3.0	3.2	3.3	3.1	3.3	3.2
Zimbabwe	50.0	49.5	47.1	45.4	44.9	36.3	17.8	15.1	13.9	17.1	16.3	6.6	3.2	3.4	3.3	2.8	2.9	3.0
<b>Southern Africa</b>	48.0	47.4	42.5	34.0	32.4	30.8	13.6	11.2	8.9	10.6	17.5	8.1	3.4	3.6	3.4	2.3	1.5	2.3
Botswana	41.0	38.8	36.7	28.4	23.6	21.4	16.8	13.5	10.2	8.3	13.8	9.5	2.4	2.5	2.6	2.0	1.0	1.2
Eswatini	46.6	44.7	42.9	33.1	29.1	25.1	16.6	12.7	9.1	10.2	14.2	5.8	3.0	3.2	3.4	2.3	1.5	1.9
Lesotho	47.8	50.6	48.1	37.2	31.9	26.7	20.0	16.3	10.6	8.0	17.5	9.4	2.8	3.4	3.7	2.9	1.4	1.7
Namibia	43.2	44.4	41.0	33.1	31.1	27.0	18.1	15.9	11.4	10.6	18.7	14.3	2.5	2.8	3.0	2.3	1.2	1.3
South Africa	42.0	44.0	40.9	36.3	29.3	28.8	17.6	13.8	10.8	8.6	13.8	8.2	2.4	3.0	3.0	2.8	1.6	2.1
<b>Total sub-Saharan Africa</b>	40.6	37.9	35.9	27.5	22.7	20.7	16.7	13.3	10.2	8.1	13.5	9.5	2.4	2.5	2.6	1.9	0.9	1.1
<b>Total sub-Saharan Africa</b>	47.2	47.0	46.3	43.2	41.1	35.5	23.2	19.9	17.1	16.1	14.5	8.7	2.4	2.7	2.9	2.7	2.7	2.7

(a) The rate of natural increase is the difference between the crude birth rate and the crude death rate.

Source: United Nations (2019a).

(a) The rate of natural increase is the difference between the crude birth rate and the crude death rate.

Source: United Nations (2019a).

**Table A.3. Median age at first union, proportion of early marriages, and intensity of polygamy and permanent singlehood in the 2010s, 39 African countries**

Subregion and country	Date of latest DHS survey	Median age at first union <sup>(a)</sup>		Age gap at first union	Percentage of women in polygamous unions <sup>(b)</sup>	Percentage of women in a union before age 15 <sup>(c)</sup>	Percentage of women in a union before age 18 <sup>(c)</sup>	Percentage of women never in a union, aged 40–49
		Women (W)	Men (M)	M - W				
Western Africa								
Benin	2017–2018	19.4	25.1	5.7	39	12	34	1
Burkina Faso	2010	17.8	25.4	7.6	42	10	52	1
Cape Verde	2005	22.6	25.7	3.1	—	4	21	16
Côte d'Ivoire	2011–2012	19.7	26.0	6.3	29	10	33	3
Gambia	2013	18.6	28.4	9.8	39	11	34	1
Ghana	2014	20.7	26.7	6.0	16	5	22	1
Guinea	2012	17.0	26.0	9.0	48	23	53	1
Liberia	2013	18.8	23.9	5.1	14	10	36	1
Mali	2012–2013	18.0	26.7	8.7	35	23	58	1
Mauritania	2001	17.1	26.5	9.4	12	23	40	2
Niger	2012	15.7	24.3	8.6	36	29	76	1
Nigeria	2013	18.1	27.2	9.1	33	20	45	1
Senegal	2017	20.2	30.2	10.0	32	9	30	3
Sierra Leone	2013	18.0	25.0	7.0	36	14	45	2
Togo	2013–2014	20.0	26.0	6.0	33	6	26	1
Central Africa								
Angola	2015–2016	20.5	24.5	4.0	23	8	30	9
Cameroon	2011	18.5	26.0	7.5	31	14	40	2
Chad	2014–2015	16.1	23.2	7.1	39	30	69	1
Congo	2011–2012	19.7	26.2	6.5	14	7	34	3
Congo (DR)	2013–2014	18.7	24.1	5.4	25	11	39	1
Gabon	2012	22.0	27.5	5.5	19	6	23	9
Equatorial Guinea	2011	20.5	26.5	6.0	25	9	30	2
São Tomé and Príncipe	2008–2009	18.8	23.4	4.6	34	5	35	1

**Table A.3 (cont'd). Median age at first union, proportion of early marriages, and intensity of polygamy and permanent singlehood in the 2010s, 39 African countries**

Subregion and country	Date of latest DHS survey	Median age at first union <sup>(a)</sup>		Age gap at first union	Percentage of women in polygamous unions <sup>(b)</sup>	Percentage of women in a union before age 15 <sup>(c)</sup>	Percentage of women in a union before age 18 <sup>(c)</sup>	Percentage of women never in a union, aged 40–49
		Women (W)	Men (M)	M - W				
Eastern Africa								
Burundi	2016–2017	20.3	24.0	3.7	7	4	21	3
Comoros	2012	20.7	27.1	6.4	21	9	30	1
Eritrea	2002	18.2	—	—	9	18	47	1
Ethiopia	2016	17.1	23.8	6.7	11	17	45	2
Kenya	2014	20.2	25.3	5.1	14	6	26	5
Madagascar	2008–2009	18.9	22.8	3.9	8	13	47	2
Malawi	2015–2016	18.2	23.0	4.8	13	11	51	1
Mozambique	2011	18.2	22.1	3.9	25	18	48	2
Rwanda	2014–2015	21.9	24.9	3.0	8	1	8	4
Tanzania	2015–2016	19.2	24.3	5.1	19	5	32	2
Uganda	2016	18.7	23.3	4.6	29	9	35	2
Zambia	2013–2014	18.4	23.9	5.5	13	7	36	1
Zimbabwe	2015	19.8	25.6	5.8	12	4	31	3
Southern Africa								
Lesotho	2014	20.3	25.9	5.6	7	2	19	7
Namibia	2013	—	—	—	24	2	7	22
South Africa	2016	31.3	33.3	2.0	6	1	5	33
(a) Women aged 25–49 in a union at the time of the survey; men aged 30–49 (or 54) in a union at the time of the survey. (b) Percentage of women aged 15–49 at the time of the survey whose husband had at least one other spouse. (c) Cohorts of women in a union aged 20–29 at the time of the survey. <b>Sources:</b> National reports of the latest DHS surveys in 2000s and 2010s.								

**Table A.4. Total fertility rates (1960–2020)  
and modern contraceptive use (1980–2020), 47 countries**

Subregion and country	Total fertility rate						Modern contraceptive use (women in a union aged 15–49) (%)				
	1960– 1965	1970– 1975	1980– 1985	1990– 1995	2000– 2005	2015– 2020	1980	1990	2000	2010	2020
<b>Western Africa</b>	6.6	6.8	6.9	6.4	6.0	5.2	1.1	3.5	8.3	11.1	20.9
Benin	6.4	6.8	7.0	6.6	5.8	4.9	0.4	1.5	6.2	7.4	14.0
Burkina Faso	6.4	6.7	7.2	6.9	6.4	5.2	0.4	2.8	6.0	15.6	30.4
Cape Verde	7.0	6.9	6.1	5.1	3.2	2.3	10.1	23.1	47.9	59.7	63.7
Côte d'Ivoire	7.8	7.9	7.3	6.4	5.7	4.7	0.6	2.5	7.8	11.9	20.8
Gambia	6.2	6.2	6.3	6.1	5.8	5.3	2.4	6.7	11.5	9.6	10.4
Ghana	6.8	6.9	6.3	5.3	4.6	3.9	5.0	6.7	14.9	19.2	29.5
Guinea	6.1	6.3	6.6	6.5	5.9	4.7	0.2	0.8	4.3	5.1	8.1
Guinea-Bissau	6.0	6.1	6.7	6.5	5.6	4.5	0.6	2.3	5.3	11.7	17.8
Liberia	6.5	6.8	7.0	6.3	5.7	4.4	3.7	6.6	8.7	14.4	31.4
Mali	7.0	7.2	7.2	7.2	6.9	5.9	0.4	2.2	6.5	8.8	15.4
Mauritania	6.8	6.8	6.3	5.7	5.3	4.6	0.2	1.3	5.0	7.3	14.5
Niger	7.5	7.6	7.9	7.8	7.7	7.0	0.5	1.8	6.7	11.3	16.6
Nigeria	6.4	6.6	6.8	6.4	6.1	5.4	0.8	3.6	8.4	10.0	20.2
Senegal	7.1	7.3	7.3	6.2	5.3	4.7	0.9	3.8	8.7	12.0	27.8
Sierra Leone	6.3	6.6	6.7	6.7	6.1	4.3	1.3	3.1	4.4	9.8	22.4
Togo	6.7	7.2	7.1	5.9	5.3	4.4	1.0	4.0	9.7	14.4	21.8
<b>Central Africa</b>	6.1	6.5	6.7	6.7	6.4	5.5	2.1	3.0	6.6	9.2	14.3
Angola	6.9	7.5	7.5	7.1	6.6	5.6	1.0	2.7	5.1	11.6	14.8
Cameroon	5.8	6.3	6.7	6.2	5.5	4.6	0.8	3.7	9.3	14.1	24.0
Central African Republic	5.9	6.0	5.9	5.7	5.5	4.8	0.8	2.1	8.7	12.0	19.0
Chad	6.3	6.7	7.0	7.4	7.2	5.8	0.2	0.7	2.4	3.9	6.5
Congo	6.0	6.3	5.8	5.0	4.9	4.5	1.9	4.3	9.7	19.0	25.7
Congo (DR)	6.0	6.3	6.6	6.8	6.7	6.0	3.2	3.0	6.3	6.6	11.0
Gabon	4.6	5.2	5.7	5.3	4.4	4.0	3.1	6.6	13.5	18.4	25.8
Equatorial Guinea	5.7	5.8	5.9	6.0	5.7	4.6	1.4	3.1	5.6	9.2	14.0
São Tomé and Príncipe	6.3	6.5	6.2	5.7	5.1	4.4	7.4	14.2	24.6	35.2	42.5

**Table A.4 (cont'd). Total fertility rates (1960–2020)  
and modern contraceptive use (1980–2020), 47 countries**

Subregion and country	Total fertility rate						Modern contraceptive use (women in a union aged 15–49) (%)				
	1960– 1965	1970– 1975	1980– 1985	1990– 1995	2000– 2005	2015– 2020	1980	1990	2000	2010	2020
<b>Eastern Africa</b>	7.1	7.1	7.0	6.4	5.8	4.4	2.9	7.8	16.5	28.6	41.2
Burundi	7.1	7.3	7.4	7.3	6.8	5.5	0.4	2.1	8.2	17.9	27.3
Comoros	6.9	7.1	7.1	6.1	5.2	4.2	2.6	7.1	15.5	14.6	20.9
Djibouti	6.5	6.8	6.5	5.9	4.2	2.8	0.9	3.1	6.2	16.3	26.5
Eritrea	6.8	6.6	6.7	6.3	5.1	4.1	0.5	2.3	6.3	7.6	12.7
Ethiopia	6.9	7.1	7.4	7.1	6.2	4.3	0.8	2.7	6.3	25.2	38.8
Kenya	8.1	8.0	7.2	5.7	5.0	3.5	6.4	20.3	32.0	44.6	61.4
Madagascar	7.3	7.2	6.5	6.1	5.3	4.1	1.1	4.1	13.2	30.8	43.1
Malawi	7.0	7.4	7.6	6.5	6.0	4.3	1.7	6.1	25.4	42.7	62.0
Mauritius	6.2	3.5	2.3	2.2	1.9	1.4	37.4	44.7	47.4	41.1	41.6
Mozambique	6.6	6.7	6.4	6.1	5.8	4.9	1.3	3.8	11.9	12.8	25.9
Rwanda	8.2	8.3	8.4	6.6	5.4	4.1	0.6	7.6	6.1	41.0	52.0
Somalia	7.3	7.1	7.1	7.5	7.5	6.1	0.0	0.1	0.4	2.2	9.9
South Sudan	6.8	6.9	6.8	6.7	6.0	4.7	0.8	2.1	3.3	3.6	6.2
Tanzania	6.8	6.8	6.6	6.1	5.7	4.9	1.9	5.9	18.7	27.6	37.7
Uganda	7.1	7.1	7.1	7.1	6.7	5.0	0.8	3.5	16.8	24.0	38.7
Zambia	7.3	7.4	6.9	6.3	6.0	4.7	2.0	7.1	21.3	38.5	51.3
Zimbabwe	7.3	7.4	6.3	4.4	3.7	3.6	19.4	37.5	51.8	57.8	67.7
<b>Southern Africa</b>	6.0	5.6	5.0	3.6	2.7	2.5	32.4	44.4	54.7	57.5	57.5
Botswana	6.7	6.6	6.0	4.1	3.2	2.9	14.9	33.6	44.3	54.3	60.2
Eswatini	6.8	6.9	6.6	4.8	3.8	3.0	7.8	18.3	31.3	58.0	65.2
Lesotho	5.8	5.8	5.4	4.5	3.7	3.2	4.8	15.7	29.4	49.0	63.9
Namibia	6.2	6.6	6.2	4.9	3.6	3.4	12.9	27.1	42.5	54.8	59.7
South Africa	6.0	5.5	4.9	3.5	2.6	2.4	35.6	47.6	57.5	58.3	56.7
<b>Total sub-Saharan Africa</b>	6.6	6.8	6.7	6.2	5.6	4.7	4.1	7.7	14.2	20.2	29.9

*Sources:* United Nations (2019a) for fertility; United Nations (2019b) for contraception.

**Table A.5. Levels, timing, and characteristics of fertility in the 2010s, 39 African countries**

Subregion and country	Date of latest DHS survey	Total fertility rate <sup>(a)</sup>	Number of children at ages 40–49	Ideal number of children at ages 25–34	Median age at first birth <sup>(b)</sup>	Percentage of adolescent women (ages 15–19) who have begun childbearing	Percentage of fertility achieved before age 25 <sup>(c)</sup>	Interval between births <sup>(d)</sup>
<b>Western Africa</b>								
Benin	2017–2018	5.7	6.0	5.0	20.5	20	32	34.1
Burkina Faso	2010	5.2	6.3	5.6	19.9	24	33	35.9
Cape Verde	2005	2.9	4.6	2.5	22.0	19	41	43.4
Côte d'Ivoire	2011–2012	5.2	5.8	5.3	19.6	30	34	36.8
Gambia	2013	5.6	6.0	5.6	20.1	18	28	34.2
Ghana	2014	4.2	4.9	4.2	21.4	14	28	39.4
Guinea	2012	5.1	6.0	5.9	19.1	34	35	37.2
Liberia	2013	4.7	6.2	4.9	18.9	31	39	37.4
Mali	2012–2013	6.1	5.9	5.9	19.6	39	35	33.5
Mauritania	2000–2001	4.7	5.8	6.4	20.7	16	27	35.0
Niger	2012	7.6	7.9	9.3	18.6	40	36	30.9
Nigeria	2013	5.5	6.3	6.5	20.2	22	28	31.7
Senegal	2017	4.6	5.5	5.3	21.8	16	28	34.6
Sierra Leone	2013	4.9	5.9	5.1	19.4	28	35	36.0
Togo	2013–2014	4.8	5.3	4.3	20.9	17	30	38.0
<b>Central Africa</b>								
Angola	2015–2016	6.2	6.0	5.1	19.5	35	34	31.0
Cameroon	2011	5.1	5.9	5.6	19.5	25	35	32.7
Chad	2014–2015	6.4	7.6	8.4	18.2	36	37	29.3
Congo	2011–2012	5.1	5.0	5.0	19.6	33	36	38.8
Congo (DR)	2013–2014	6.6	6.4	6.3	19.9	27	31	30.4
Gabon	2012	4.1	5.0	4.7	19.5	28	30	37.6
Equatorial Guinea	2011	5.1	5.8	5.9	18.2	42	40	34.4
São Tomé and Príncipe	2008–2009	4.9	4.9	3.6	19.5	23	31	44.2

Table A.5 (cont'd). Levels, timing, and characteristics of fertility in the 2010s, 39 African countries

Subregion and country	Date of latest DHS survey	Total fertility rate <sup>(a)</sup>	Number of children at ages 40–49	Ideal number of children at ages 25–34	Median age at first birth <sup>(b)</sup>	Percentage of adolescent women (ages 15–19) who have begun childbearing	Percentage of fertility achieved before age 25 <sup>(c)</sup>	Interval between births <sup>(d)</sup>
<b>Eastern Africa</b>								
Burundi	2016–2017	5.5	6.3	3.9	21.5	4	25	33.8
Comoros	2012	4.3	5.3	5.5	23.0	11	22	31.0
Eritrea	2002	4.8	5.9	5.9	21.4	14	27	33.6
Ethiopia	2016	4.6	6.4	4.6	19.2	13	30	34.5
Kenya	2014	3.9	4.9	3.5	20.3	18	38	36.3
Madagascar	2008–2009	4.8	5.5	4.6	20.1	32	40	32.7
Malawi	2015–2016	4.4	5.9	3.7	19.0	29	40	41.0
Mozambique	2011	5.9	5.5	5.0	19.4	38	37	34.8
Rwanda	2014–2015	4.2	5.5	3.4	22.7	7	47	38.5
Tanzania	2015–2016	5.2	5.7	4.7	19.7	27	35	35.0
Uganda	2016	5.4	6.8	4.8	19.2	25	37	31.9
Zambia	2013–2014	5.3	6.3	4.8	19.1	29	36	34.9
Zimbabwe	2015	4.0	4.2	3.9	20.3	22	39	43.7
<b>Southern Africa</b>								
Lesotho	2014	3.3	3.8	3.0	20.9	19	41	45.8
Namibia	2013	3.6	3.7	3.3	21.6	19	35	45.1
South Africa	2016	2.6	2.9	2.6	21.3	16	39	55.0
<p>(a) Mean number of children that a woman would have at age 50 with the age-specific fertility rates in the year in question.</p> <p>(b) Women aged 25–49.</p> <p>(c) Sum of fertility rates at ages 15–19 and 20–24 divided by the sum of fertility rates from ages 15–19 to 45–49.</p> <p>(d) Median number of months since previous birth, all women aged 15–49.</p> <p><b>Note:</b> For an identical table covering the 1990s (30 countries), see Tabutin and Schoumaker (2004).</p> <p><b>Sources:</b> National reports of DHS surveys in the 2010s.</p>								

**Table A.6. Life expectancy at birth and child mortality at ages 0–5 from 1960–1965 to 2015–2020, 47 countries**

Subregion and country	Life expectancy at birth (years)						Probability of dying at ages 0–5 (per 1,000)					
	1960–1965	1970–1975	1980–1985	1990–1995	2000–2005	2015–2020	1960–1965	1970–1975	1980–1985	1990–1995	2000–2005	2015–2020
<b>Western Africa</b>	37.7	41.9	46.7	48.3	49.5	57.3	297	257	216	202	162	91
Benin	38.4	43.5	48.3	55.1	56.2	61.3	296	255	208	169	135	96
Burkina Faso	35.6	40.3	48.4	49.3	51.6	60.9	327	283	229	204	173	84
Cape Verde	49.0	54.9	62.1	65.5	69.9	72.7	184	134	82	59	30	20
Côte d'Ivoire	38.3	46.3	52.1	52.7	49.5	57.2	299	215	164	152	136	87
Gambia	32.8	40.1	48.2	52.9	56.9	61.5	351	267	200	153	106	68
Ghana	46.9	50.0	53.1	57.8	57.5	63.7	205	177	151	114	94	52
Guinea	35.4	37.4	43.1	51.3	51.3	61.0	327	311	265	216	161	81
Guinea-Bissau	38.2	41.4	44.9	47.9	51.4	57.8	290	260	228	204	161	82
Liberia	35.1	40.9	47.0	46.2	52.8	63.6	315	266	231	258	153	74
Mali	28.6	34.2	41.6	46.6	50.0	58.7	408	356	294	246	196	105
Mauritania	46.2	51.3	56.3	60.2	60.9	64.6	233	189	151	115	113	79
Niger	35.3	36.3	40.3	45.0	51.6	61.8	323	325	314	293	194	85
Nigeria	38.1	42.0	46.0	45.9	46.9	54.2	288	249	212	213	172	102
Senegal	38.6	40.9	51.3	57.6	58.9	67.5	293	276	186	138	114	45
Sierra Leone	32.5	37.3	40.5	37.6	42.0	54.1	379	318	276	259	217	110
Togo	41.9	48.1	53.6	55.8	53.9	60.5	259	208	167	142	124	75
<b>Central Africa</b>	40.9	44.8	47.9	49.3	50.6	59.4	263	226	198	184	164	96
Angola	38.3	41.8	44.7	45.2	48.1	60.5	297	259	231	223	192	81
Cameroon	43.0	47.9	52.4	52.6	51.8	58.8	245	201	161	158	140	88
Central African Republic	37.5	44.3	49.8	48.1	44.1	52.7	295	233	180	176	172	122
Chad	38.7	42.6	45.5	47.2	48.0	53.8	284	246	218	198	178	123
Congo	47.2	51.7	54.8	53.7	53.3	64.2	177	134	101	96	107	48
Congo (DR)	41.6	44.8	47.1	49.6	51.8	60.2	255	226	204	182	163	100
Gabon	40.7	49.2	57.2	60.7	57.6	66.1	266	189	123	91	86	48
Equatorial Guinea	37.4	40.7	46.0	49.9	54.0	58.3	296	265	218	184	143	94
São Tomé and Príncipe	51.7	56.7	60.0	58.3	63.1	70.1	162	120	95	108	73	32



**Table A.6 (cont'd). Life expectancy at birth and child mortality at ages 0–5 from 1960–1965 to 2015–2020, 47 countries**

Subregion and country	Life expectancy at birth (years)						Probability of dying at ages 0–5 (per 1,000)					
	1960–1965	1970–1975	1980–1985	1990–1995	2000–2005	2015–2020	1960–1965	1970–1975	1980–1985	1990–1995	2000–2005	2015–2020
<b>East Africa</b>	42.7	46.3	48.6	47.7	51.5	64.2	246	214	194	182	121	60
Burundi	42.0	44.2	47.3	47.0	51.4	61.0	251	231	197	182	143	63
Comoros	42.5	46.9	52.3	57.8	59.6	64.0	249	208	158	114	101	70
Djibouti	45.2	50.9	54.7	57.0	57.3	66.5	222	171	140	120	106	51
Eritrea	40.1	44.1	47.3	50.8	56.7	65.7	270	224	184	144	81	44
Ethiopia	40.1	43.5	43.5	48.1	53.6	66.0	270	237	237	190	123	55
Kenya	48.4	54.0	58.8	55.7	51.7	66.2	196	148	110	108	94	47
Madagascar	41.2	46.0	49.7	52.7	60.0	66.5	249	210	172	152	87	43
Malawi	37.4	41.1	45.1	46.1	45.6	63.4	324	290	251	205	137	55
Mauritius	61.2	63.5	68.1	70.3	72.1	74.8	86	84	31	21	16	13
Mozambique	40.5	41.9	43.5	46.3	49.9	60.1	273	270	259	229	151	73
Uganda	45.8	49.6	49.8	44.5	49.0	62.8	220	186	184	171	123	63
Rwanda	43.4	45.0	50.3	21.8	50.4	68.4	242	228	180	466	146	38
Somalia	38.0	41.9	45.5	45.0	51.5	56.9	291	253	219	222	161	115
South Sudan	32.7	36.7	39.5	45.3	50.2	57.4	348	304	276	219	165	99
Tanzania	44.2	47.8	50.5	49.7	52.7	64.8	236	204	179	164	105	57
Zambia	47.7	51.2	52.7	46.4	46.0	63.3	197	168	161	185	138	61
Zimbabwe	54.2	57.5	60.8	54.4	43.7	60.8	139	111	93	87	100	51
<b>Southern Africa</b>	49.2	53.8	59.2	62.7	53.0	63.3	181	137	83	60	81	39
Botswana	50.4	55.1	60.1	56.5	50.1	69.1	156	108	62	59	82	38
Eswatini	44.5	49.9	57.6	60.9	43.6	59.3	221	171	101	76	131	54
Lesotho	48.5	51.8	58.1	58.6	44.2	53.5	188	167	110	91	122	87
Namibia	48.3	53.9	58.0	61.2	50.6	63.0	187	134	101	70	75	45
South Africa	49.3	54.0	59.4	63.3	53.9	63.6	180	135	81	57	77	35
<b>Total sub-Saharan Africa</b>	40.9	44.9	48.5	49.1	50.6	60.5	263	227	195	183	142	78
<i>Source:</i> United Nations (2019a).												

**Table A.7. Conditions of delivery, mortality, and health of children in the 2010s, 39 African countries**

Subregion and country	Date of latest DHS survey	Probability of dying (per 1,000) <sup>(a)</sup>			Percentage of births with no antenatal care <sup>(b)</sup>	Percentage of deliveries not attended by skilled health personnel <sup>(c)</sup>	Percentage of children vaccinated <sup>(d)</sup>	Percentage of children malnourished <sup>(e)</sup>
		Neonatal	Under 1 year	0–5 years				
Western Africa								
Benin	2017–2018	30	55	96	11	22	57	32
Burkina Faso	2010	28	65	129	5	77	81	35
Cape Verde	2005	17	30	35	3	6	86	—
Côte d'Ivoire	2011–2012	38	68	108	8	41	51	30
Gambia	2013	22	34	54	—	36	76	26
Ghana	2014	29	41	60	3	41	77	19
Guinea	2012	39	67	123	13	59	37	31
Liberia	2013	26	54	94	2	39	55	32
Mali	2012–2013	34	56	95	25	41	39	38
Mauritania	2001	—	74	116	35	43	32	35
Niger	2012	24	51	127	14	31	52	44
Nigeria	2013	37	69	128	34	62	25	37
Senegal	2017	28	42	56	3	32	75	17
Sierra Leone	2013	39	92	156	3	40	68	38
Togo	2013–2014	27	49	88	7	55	62	28
Central Africa								
Angola	2015–2016	24	44	68	18	50	31	38
Cameroon	2011	31	62	122	15	36	53	32
Chad	2014–2015	34	72	133	35	76	25	40
Congo	2011–2012	22	39	68	7	17	46	24
Congo (DR)	2013–2014	28	58	104	10	20	45	43
Gabon	2012	26	43	65	5	13	32	17
Equatorial Guinea	2011	33	65	113	8	32	27	26
São Tomé and Príncipe	2008–2009	18	38	63	1	18	77	29

Table A.7 (cont'd). Conditions of delivery, mortality, and health of children in the 2010s, 39 African countries

Subregion and country	Date of latest DHS survey	Probability of dying (per 1,000) <sup>(a)</sup>			Percentage of births with no antenatal care <sup>(b)</sup>	Percentage of deliveries not attended by skilled health personnel <sup>(c)</sup>	Percentage of children vaccinated <sup>(d)</sup>	Percentage of children malnourished <sup>(e)</sup>
		Neonatal	Under 1 year	0–5 years				
Eastern Africa								
Burundi	2016–17	23	47	78	1	15	85	55
Comoros	2012	24	36	50	7	18	62	30
Eritrea	2002	24	48	93	29	62	76	38
Ethiopia	2016	29	48	67	37	82	38	38
Kenya	2014	22	39	52	8	38	71	26
Madagascar	2008–09	24	48	72	9	56	62	50
Malawi	2014–15	27	42	64	2	10	76	37
Mozambique	2011	30	64	97	6	46	66	43
Rwanda	2014–15	20	32	50	3	10	93	38
Tanzania	2015–16	25	43	67	2	36	75	34
Uganda	2016	27	43	64	3	26	55	29
Zambia	2013–14	24	45	95	2	36	69	40
Zimbabwe	2015	29	50	69	7	22	76	27
Southern Africa								
Lesotho	2014	24	59	85	5	22	68	33
Namibia	2013	20	39	54	13	12	68	24
South Africa	2016	20	35	42	6	3	61	27
<p>(a) Probabilities of dying between birth and the ages of 1 month, 1 year, and 5 years during the 5 years preceding the survey.</p> <p>(b) With no examination by a doctor, nurse, or midwife during pregnancy.</p> <p>(c) With no assistance from a doctor, nurse, midwife, or equivalent.</p> <p>(d) Children aged 12–23 months who have received all vaccines (BCG, DPT, polio and measles).</p> <p>(e) Height for age as a measure of chronic malnutrition (medium and severe).</p> <p><b>Note:</b> For an identical table covering the 1990s (30 countries), see Tabutin and Schoumaker (2004).</p> <p><b>Sources:</b> National reports of latest DHS surveys in 2000s and 2010s.</p>								

**Table A.8. Age structures by broad age group  
and dependency ratios in 1980, 2000, and 2020, 47 African countries**

Subregion and country	Percentage under 15			Percentage 60 and over			Median age (in years)			Dependency ratios <sup>(a)</sup> (%) in 2020
	1980	2000	2020	1980	2000	2020	1980	2000	2020	
<b>Western Africa</b>	44.7	44.2	43.1	4.8	4.7	4.6	17.6	17.7	18.2	95.9
Benin	44.7	45.1	41.9	6.5	5.0	5.1	17.7	17.3	18.8	88.8
Burkina Faso	45.6	46.8	44.4	5.3	4.3	3.9	17.1	16.4	17.6	93.4
Cape Verde	47.3	43.0	28.1	6.8	7.3	7.6	16.0	18.0	27.6	55.4
Côte d'Ivoire	45.3	43.6	41.5	4.3	4.6	4.7	17.5	18.0	18.9	85.8
Gambia	43.6	47.1	44.0	3.9	4.2	3.9	18.4	16.5	17.8	91.9
Ghana	46.9	42.5	37.1	4.4	4.5	5.3	16.4	18.5	21.5	73.7
Guinea	43.3	46.4	43.0	5.6	5.3	4.7	18.3	16.7	18.0	91.4
Guinea-Bissau	43.5	45.4	41.9	6.1	4.5	4.6	18.3	17.0	18.8	86.9
Liberia	44.9	42.7	40.4	5.1	5.5	5.2	17.5	18.4	19.4	83.9
Mali	44.1	46.6	47.0	5.6	5.0	3.9	17.9	16.6	16.3	103.5
Mauritania	45.5	43.5	39.7	4.7	5.0	5.1	17.1	17.9	20.1	81.1
Niger	48.1	48.3	49.7	3.4	4.0	4.1	16.0	15.9	15.2	116.4
Nigeria	44.1	43.6	43.5	4.7	4.7	4.5	18.0	17.9	18.1	92.3
Senegal	46.3	44.7	42.6	4.5	5.0	4.8	16.8	17.3	18.5	90.1
Sierra Leone	42.5	44.2	40.3	6.2	5.2	4.6	18.8	17.7	19.4	81.7
Togo	46.4	43.3	40.6	4.8	4.6	4.7	16.8	18.0	19.4	82.9
<b>Central Africa</b>	44.7	45.8	45.0	5.1	4.7	4.4	17.6	17.0	17.3	101.8
Angola	46.1	47.2	46.4	4.3	4.2	3.7	16.8	16.3	16.7	105.7
Cameroon	44.7	45.1	42.1	5.8	4.9	4.3	17.7	17.2	18.7	100.0
Central African Republic	42.2	43.3	43.5	6.7	5.4	4.5	18.8	18.1	17.6	94.8
Chad	45.1	48.9	46.5	5.6	4.4	3.9	17.5	15.5	16.6	114.2
Congo	46.1	42.2	41.3	5.0	4.3	4.5	16.9	18.6	19.2	86.8
Congo (DR)	44.6	45.5	45.8	4.7	4.7	4.7	17.7	17.2	17.0	101.1
Gabon	39.3	41.0	37.3	9.2	7.6	5.4	21.4	19.3	22.5	94.7
Equatorial Guinea	39.0	40.6	36.8	7.4	5.6	3.8	20.7	19.6	22.3	86.0
São Tomé and Príncipe	47.6	44.4	41.8	6.4	5.2	5.0	16.1	17.2	18.6	98.2

**Table A.8 (cont'd). Age structures by broad age group and dependency ratios in 1980, 2000, and 2020, 47 African countries**

Subregion and country	Percentage under 15			Percentage over 60			Median age (in years)			Dependency ratios <sup>(a)</sup> (%) in 2020
	1980	2000	2020	1980	2000	2020	1980	2000	2020	
<b>Eastern Africa</b>	46.2	45.8	41.8	4.7	4.4	4.6	16.8	16.9	18.7	100.7
Burundi	44.7	50.1	45.3	5.0	3.8	4.1	17.4	15.0	17.3	116.8
Comoros	44.8	44.0	39.0	5.2	4.7	5.1	17.5	17.7	20.4	94.9
Djibouti	46.5	41.0	28.9	3.9	4.8	7.4	16.5	19.3	26.6	84.3
Eritrea	44.3	45.7	41.1	4.3	6.2	6.4	17.8	16.6	19.2	108.1
Ethiopia	45.1	46.5	39.9	5.1	4.8	5.3	17.6	16.6	19.5	105.2
Kenya	50.1	45.2	38.6	4.4	3.5	4.2	15.0	17.0	20.1	95.1
Madagascar	46.2	45.2	40.1	5.1	4.6	5.0	16.8	17.3	19.6	98.9
Malawi	45.9	46.1	43.0	4.8	4.8	4.1	17.1	16.9	18.1	103.7
Mauritius	35.6	25.8	16.8	5.8	8.9	18.4	21.5	29.0	37.5	53.1
Mozambique	43.4	44.5	44.1	5.5	5.2	4.4	18.3	17.6	17.6	98.9
Rwanda	48.0	44.4	39.5	3.6	4.8	5.1	16.0	17.4	20.0	96.6
Somalia	43.8	47.2	46.1	5.1	4.3	4.6	18.1	16.5	16.7	106.0
South Sudan	44.3	44.8	41.3	4.5	5.0	5.2	17.8	17.6	19.0	99.2
Tanzania	46.3	44.8	43.6	4.2	4.2	4.2	16.8	17.4	18.0	95.8
Uganda	47.0	49.7	46.0	4.3	3.4	3.2	16.4	15.2	16.7	113.2
Zambia	48.5	46.4	44.0	4.1	3.7	3.4	15.7	16.6	17.6	100.6
Zimbabwe	49.7	42.1	41.9	4.4	4.6	4.6	15.1	18.2	18.7	87.3
<b>Southern Africa</b>	41.6	34.7	29.5	6.1	6.7	8.3	19.0	22.1	27.0	70.7
Botswana	48.5	38.7	33.4	5.1	4.9	7.0	15.7	19.7	24.0	77.1
Eswatini	50.1	43.0	37.4	4.2	4.5	5.7	15.0	17.7	20.7	90.6
Lesotho	45.8	40.0	32.2	6.4	6.0	7.5	16.9	19.0	24.0	85.3
Namibia	46.5	42.0	36.8	5.6	4.8	5.6	16.7	18.5	21.8	88.2
South Africa	40.9	33.9	28.8	6.1	6.9	8.5	19.4	22.6	27.6	68.8
<b>Total sub-Saharan Africa</b>	45.1	44.3	42.1	4.9	4.7	4.8	17.4	17.6	18.7	96.3

(a) Ratio of the population aged under 15 and over 60 to the population aged 15–59.  
**Source:** United Nations (2019a).

## REFERENCES

Focusing on the years 2000–2019, this bibliography lists the authors cited in the text and includes several articles and books that we feel are representative of recent work on the demography of sub-Saharan Africa.

- ADJAMAGBO A., LOCOH T., 2015, Genre et démographie: une rencontre féconde, in Verschuur C., Guérin I., Guétat-Bernard H. (eds.), *Sous le développement, le genre*, Marseille, IRD Éditions, 99–108.
- AGYEI-MENSAH S., DE GRAFT AIKINS A., 2010, Epidemiological transition and the double burden of disease in Accra, Ghana, *Journal of Urban Health*, 87(5), 879–897.
- ALBIS H. D', BOUBTANE E., 2015, Characteristics of migration flows to France based on residence permit data (1998–2013), *Population*, 70(3), 461–496.
- ALKEMA L., CHAO F., YOU D., PEDERSEN J., SAWYER C., 2014a, National, regional and global sex ratios of infant, child and under-5 mortality and identification of countries with outlying ratios: A systematic assessment, *The Lancet Global Health*, 2(9), e521–e530.
- ALKEMA L., NEW J. R., PEDERSEN J., YOU D., BASTIAN P. et al., 2014b, Child mortality estimation 2013: An overview of updates in estimation methods by the UN Inter-Agency Group for child mortality estimation, *PLoS ONE*, 9, e101112.
- ALKEMA L., CHOU D., HOGAN D. et al., 2016, Global, regional and national levels and trends in maternal mortality between 1990 and 2015, with scenarios-based projections to 2030: A systematic analysis by the UN Maternal Mortality Estimation Inter-Agency Group, *The Lancet*, 327, 462–474.
- AMEGAH A.K., AGYEI-MENSAH S., 2017, Urban air pollution in sub-Saharan Africa: Time for action, *Environmental Pollution*, 220 (Part A), 738–743.
- ANTOINE P., 2002, Les complexités de la nuptialité: de la précocité des unions féminines à la polygamie masculine, in Caselli G., Vallin J., Wunsch G. (eds.), *Démographie: analyse et synthèse. II. Les déterminants de la fécondité*, Paris, INED, 75–102.
- ANTOINE P., 2006, Analyse biographique de la transformation des modèles matrimoniaux dans quatre capitales africaines: Antananarivo, Dakar, Lomé et Yaoundé, *Cahiers québécois de démographie*, 35(2), 5–38.
- ANTOINE P., 2009, Vieillir en Afrique, *Idées économiques et sociales*, 157, 34–39.
- ANTOINE P., GOLAZ V., 2010, Vieillir au Sud: une grande variété de situations, *Autrepart*, 53(1), 3–16.
- ANTOINE P., MARCOUX R., 2014a, Pluralité des formes et des modèles matrimoniaux en Afrique: un état des lieux, in Antoine P., Marcoux R. (eds.), *Le mariage en Afrique. Pluralité des formes et des modèles matrimoniaux*, Presses de l'Université du Québec, 7–20.
- ANTOINE P., MARCOUX R. (eds.), 2014b, *Le mariage en Afrique. Pluralité des formes et des modèles matrimoniaux*, Presses de l'Université du Québec.
- ANYAMELE O. D., 2009, Urban and rural differences across countries in child mortality in sub-Saharan Africa, *Journal of Health Care for the Poor and Underserved*, 20, 90–98.

- ARTUC E., DOCQUIER F., ÖZDEN C., PARSONS C., 2013, A global assessment of human capital mobility: The role of non-OECD destinations, IZA Discussion Paper No. 8746.
- BEAUCHEMIN C., 2015, Migration between Africa and Europe (MAFE): Advantages and limitations of a multi-site survey design, *Population*, 70(1), 13–38.
- BEAUCHEMIN C., BOCQUIER P., 2004, Migration and urbanisation in francophone West Africa: An overview of the recent empirical evidence, *Urban Studies*, 41(11), 2245–2272.
- BEAUCHEMIN C., LESSAULT D., 2014, Les statistiques des migrations africaines: ni exode, ni invasion, *e-Migrinter*, 12, 32–43.
- BEAUCHEMIN C., FLAHAUX M.-L., SCHOUMAKER B., 2015, *Sub-Saharan migration to Europe in times of restrictions: An empirical test of substitution effects*, Meeting of the Population Association of America, San Diego.
- BEAUCHEMIN C., KABANJI L., SAKHO P., SCHOUMAKER B., 2013, *Migrations africaines: Le co-développement en questions. Essai de démographie politique*, Paris, Armand Colin.
- BEAUCHEMIN C., SAKHO P., SCHOUMAKER B., FLAHAUX M.-L., 2018, From Senegal and back (1978–2008): Migration trends and routes of migrants in times of restrictions, in Beauchemin C. (ed.), *Migration Between Africa and Europe*, Dordrecht, Springer, 363–396.
- BEAUJEU R., KOLIE M., SEMPERE J.-F., UHDER C., 2011, *Transition démographique et emploi en Afrique subsaharienne*, Agence française pour le développement, À savoir, No. 5.
- BEEGLE K., CHRISTIAENSEN L., DABALEN A., GADDIS I., 2016, *Poverty in a rising Africa overview*, Washington DC, World Bank.
- BENDAVID E., 2014, Changes in child mortality over time across the wealth gradient in less-developed countries, *Pediatrics*, 134(6), e1551–e1559.
- BOCQUIER P., SCHOUMAKER B., 2018, *The demographic transition in sub-Saharan Africa and the role of urban areas in this transition*. Unpublished manuscript (available upon request), Université catholique de Louvain, Louvain-la-Neuve.
- BOCQUIER P., MADISE N. J., ZULU E. M., 2011, Is there an urban advantage in child survival in sub-Saharan Africa? Evidence from 18 countries in the 1990s, *Demography*, 48(2), 531–558.
- BONGAARTS J., 2010, The causes of educational differences in fertility in sub-Saharan Africa, *Vienna Yearbook of Population Research*, 8, 31–50.
- BONGAARTS J., 2011, Can family planning programs reduce high desired family size in sub-Saharan Africa? *International Perspectives on Sexual and Reproductive Health*, 37(4), 209–216.
- BONGAARTS J., 2015, Modeling the fertility impact of the proximate determinants: Time for a tune-up, *Demographic Research*, 33(art. 19), 535–560.
- BONGAARTS J., 2017, Africa's unique fertility transition, *Population and Development Review*, 43(Suppl. 1), 39–58.
- BONGAARTS J., CASTERLINE J., 2013, Fertility transition: Is sub-Saharan Africa different? *Population and Development Review*, 38(Suppl. 1), 153–168.
- BORDERON M., SAKDAPOLRAK P., MUTTARAK R., KEBEDE E., PAGOGNA R., SPORER E., 2019, A systematic review of empirical evidence on migration influenced by environmental change in Africa, *Demographic Research*, 41(art. 18), 491–544.
- BROCKERHOFF M., BRENNAN E., 1998, The poverty of cities in developing regions, *Population and Development Review*, 24(1), 75–114.
- CALVÈS A., 2016, First union in urban Burkina Faso. Competing relationship transitions to marriage or cohabitation, *Demographic Research*, 34(art. 15), 421–450.

- CALVÈS A., N'BOUKE A., 2018a, Le mariage, l'union libre et le nouveau contexte de formation de la famille à Ouagadougou, in Calvès A., Dial F. B., Marcoux R. (eds.), *Nouvelles dynamiques familiales en Afrique*, Presses de l'Université du Québec, 243–262.
- CALVÈS A., DIAL F. B., MARCOUX R. (eds.), 2018b, *Nouvelles dynamiques familiales en Afrique*, Presses de l'Université du Québec.
- CALDWELL J., 1986, Routes to low mortality in poor countries, *Population and Development Review*, 12(2), 171–220.
- CASADELLA V. (ed.), 2018, Éducation et fertilisation des économies africaines [Special issue], *Marché et organisations*, 32.
- CAPPS R., MCCABE K., FIX M., 2012, *Diverse streams: Black African migration to the United States*, Washington DC, Migration Policy Institute.
- CASTLE S., ASKEW I., 2015, *Contraceptive discontinuation: Reasons, challenges and solutions*, New York, Population Council.
- CASTERLINE J., 2017, Prospects for fertility decline in Africa, *Population and Development Review*, 43(Suppl. 1), 3–18.
- CASTERLINE J., ODDEN C., 2016, Trends in inter-birth intervals in developing countries 1965–2014, *Population and Development Review*, 42(2), 173–194.
- CASTERLINE J., BONGAARTS J. (eds), 2017, Fertility transitions in sub-Saharan Africa, *Population and Development Review*, 43, Suppl. S1.
- CHAE S., DESAI S., CROWELL M., SEDGH G., SINGH S., 2017, Characteristics of women obtaining induced abortions in selected low-and middle income countries, *PLoS ONE*, 12(5), e0177149.
- CHOI Y., SHORT FABIC M., ADETUNJI J., 2018, Does age-adjusted measurement of contraceptive use better explain the relationship between fertility and contraception? *Demographic Research*, 39(art. 45), 1227–1240.
- CLARK S., BRAUNER-OTTO S., 2015, Divorce in sub-Saharan Africa: Are unions becoming less stable? *Population and Development Review*, 41(4), 583–605.
- CLARK S., KOSKI A., SMITH-GREENAWAY E., 2017, Recent trends in premarital fertility across sub-Saharan Africa, *Studies in Family Planning*, 48(1), 3–22.
- CLELAND J., MACHIYAMA K., 2017, The challenge posed by demographic change in sub-Saharan Africa: A concise overview, *Population and Development Review*, 43(S1), 264–286.
- CLELAND J., NDUGWA R., ZULU E., 2011, Family planning in sub-Saharan Africa: Progress or stagnation? *Bulletin of the World Health Organization*, 89(2), 137–143.
- CLEMENS M., PETTERSSON G., 2008, New data on African health professionals abroad, *Human Resources for Health*, 6(art. 1).
- COHEN B., 1998, The emerging fertility transition in sub-Saharan Africa, *World Development*, 26(8), 1431–1461.
- COUSSY J., VALLIN J. (eds.), 1996, *Crise et population en Afrique*, Paris, CEPED.
- DELAUNAY V., 2009, Abandon et prise en charge des enfants en Afrique: une problématique centrale pour la protection de l'enfant, *Mondes en développement*, 146(2), 33–46.
- DELAUNAY V., 2017 (ed.), *La situation démographique dans l'observatoire de Niakhar, 1963–2014*, IRD-LPED-INDEPTH Network.
- DELAUNAY V., ADJAMAGBO A., OUEDRAOGO S., 2018, La monoparentalité en Afrique: Prévalence et déterminants. Analyse comparative Bénin, Burkina Faso et Togo, in Calvès A., Dial F. B., Marcoux R. (eds.), *Nouvelles dynamiques familiales en Afrique*, Presses de l'Université du Québec, 68–92.



- DELAUNAY D., GUENGANT J.-P. (eds.), 2019, *Le dividende démographique en Afrique subsaharienne*, Paris, IEDES-Université Paris 1.
- DEMART S., SCHOUMAKER B., ADAM I., GODIN M., 2017, *Des citoyens aux racines africaines: Un portrait des Belgo-Congolais, Belgo-Rwandais et Belgo-Burundais*, Brussels, Fondation Roi Baudouin.
- DEMIG, 2015, DEMIG C2C, version 1.2, Limited Online Edition, Oxford, International Migration Institute, University of Oxford, [www.imi-n.org](http://www.imi-n.org)
- DIAL F. B., 2007, Le divorce, une source d'émancipation pour les femmes? Une enquête à Dakar et Saint-Louis, in Locoh T. (ed.), *Genre et sociétés en Afrique: implications pour le développement*, Paris, INED, 357–372.
- DONADJE F., TABUTIN D., 1994, Male nuptiality and fertility in southern Benin, in Locoh T., Hertrich V. (eds.), *The onset of fertility decline in sub-Saharan Africa*, Liège, UIESP, 135–162.
- DOS SANTOS S., 2006, Accès à l'eau et enjeux socio-sanitaires à Ouagadougou, *Espace, population, sociétés*, 2–3, 271–285.
- DUBRESSON A., 2003, L'Afrique subsaharienne face au défi urbain, in Eggerickx T., Gourbin C., Schoumaker B., Vandeschrick C., Vilquin E. (eds.), *Populations et défis urbains*, Actes de la Chaire Quetelet 1999, Louvain-la-Neuve, Academia–L'Harmattan, 51–78.
- FERRY B. (ed.), 2007, *L'Afrique face à ses défis démographiques. Un avenir incertain*, Paris, AFD–CEPED–Karthala.
- FENSKE J., 2011, African polygamy: Past and present, *LSE Research Online*.
- FINK G., GUNTHER I., HILL K., 2014, Slum residence and child health in developing countries, *Demography*, 51(4), 1175–1197.
- FLAHAUX M.-L., DE HAAS H., 2016, African migration: Trends, patterns, drivers, *Comparative Migration Studies*, 4(1).
- FOX A., 2010, The social determinants of HIV serostatus in sub-Saharan Africa: An inverse relationship between poverty and HIV? *Public Health Reports*, 125(Suppl. 4), 16–24.
- FREEMAN L., 2017, Environmental change, migration, and conflict in Africa: A critical examination of the interconnections, *The Journal of Environment and Development*, 26(4), 351–374.
- FRENK J., BOBADILLA J., SEPÚALVEDA J., CERVANTES M., 1989, Health transition in middle-income countries: New challenges for health care, *Health Policy and Planning*, 4(1), 29–39.
- GAIGBE-TOGBE V., 2015, *The impact of socio-economic inequalities on early childhood survival: Results from the demographic and health surveys*, Technical paper No. 2015/1, United Nations Population Division.
- GAKIDOU E., COWLING K., LOZANO R., MURRAY C., 2010, Increased educational attainment and its effects on child mortality in 175 countries between 1970 and 2009: A systematic analysis, *The Lancet*, 376(9745), 959–974.
- GARENNE M., 2010, Urbanisation and child health in resource poor settings with special reference to under-five mortality in Africa, *Archives of Disease in Childhood*, 95(6), 464–468.
- GARENNE M., 2014, *Trends in marriage and contraception in sub-Saharan Africa: A longitudinal perspective on factors of fertility decline*, Rockville, ICF International, DHS Analytical Studies, 42.
- GERLAND P., BIDDLECOM A., KANTOROVÁ V., 2017, Patterns of fertility decline and the impact of alternative scenarios of future fertility change in sub-Saharan Africa, *Population and Development Review*, 43(Suppl. 1), 21–38.

- GBD COLLABORATORS, 2016, Global, regional and national life expectancy, all-cause mortality and cause-specific mortality for 249 causes of death, 1980–2015: A systematic analysis for the Global Burden of Disease Study 2015, *The Lancet*, 388(10053), 1459–1544.
- GLYNN J., CARAEL M., BUVE A., ANAGONOU S., ZEKENG L. et al., 2004, Does increased general schooling protect against HIV infection? A study in four African cities, *Tropical Medicine and International Health*, 9(1), 4–14.
- GNUOMOU THIOMBANO B., 2017, Union breakdown in West African cities: The cases of Ouagadougou and Lomé, *Demographic Research*, 37(art. 5), 101–128.
- GNUOMOU THIOMBANO B., LEGRAND T., 2014, Niveaux et facteurs de rupture des premières unions conjugales au Burkina Faso, *African Population Studies*, 28(3), 1432–1446.
- GONZÁLEZ-FERRER A., KRAUS E., BAÍZAN P., BEAUCHEMIN C., BLACK R., SCHOUMAKER B., 2018, Migration Between Africa and Europe: Assessing the role of resources, family and networks, in Beauchemin C. (ed.), *Migration Between Africa and Europe*, Springer, 81–122.
- GOURBIN C., WUNSCH G., MOREAU L., GUILLAUME A., 2017, Direct and indirect paths leading to contraceptive use in urban Africa. An application to Burkina Faso, Ghana, Morocco, Senegal, *Revue Quetelet/Quetelet Journal*, 5(1), 33–71.
- GROTH H., MAY J. (eds.), 2017, *Africa's population: In search of a demographic dividend*, Cham, Switzerland, Springer.
- GUENGANT J.-P., 2011, *Comment bénéficier du dividende démographique*, IRD/AFD, À savoir, No. 9.
- GUILLAUME A., ROSSIER C., 2018, Abortion around the world: An overview of legislation, measures, trends, and consequences, *Population*, 73(2), 217–306.
- GÜNTHER I., HARTTGEN K., 2012, Deadly cities? Spatial inequalities in mortality in sub-Saharan Africa, *Population and Development Review*, 38(3), 469–486.
- HAYFORD S., AGADJANIAN V., 2019, Spacing, stopping, or postponing? Fertility desires in a sub-Saharan setting, *Demography*, 56(2), 573–594.
- HARGREAVES J., BONELL C., BOLER T., BOCCIA D., BIRDTTHISTLE I. et al., 2008, Systematic review exploring time trends in the association between educational attainment and risk of HIV infection in sub-Saharan Africa, *AIDS*, 22(3), 403–414.
- HÉRAN F., 2018, Europe and the spectre of sub-Saharan migration, *Population & Societies*, 558, September.
- HERTRICH V., 2007, Nuptialité et rapports de genre en Afrique. Tendances de l'entrée en union, 1950–99, in Locoh T. (ed.), *Genre et sociétés en Afrique: implications pour le développement*, Paris, INED, 281–307.
- HERTRICH V., 2017, Trends in age at marriage and the onset of fertility transition in sub-Saharan Africa, *Population and Development Review*, 43(S1), 112–137.
- HERTRICH V., LARDOUX S., 2014, Estimating age at first union in Africa. Are census and survey data compatible? *Population*, 69(3), 357–390.
- HOMMANN K., LALL S., 2019, *Which way to livable and productive cities? A road map for sub-Saharan Africa*, Washington DC, World Bank.
- HOUWELING T., KUNST A. E., 2010, Socio-economic inequalities in childhood mortality in low-and middle-income countries: A review of the international evidence, *British Medical Journal*, 93(1), 7–26.
- HUGON P., 2007, Variables démographiques et développement. Le cas de l'éducation et de la santé en Afrique, in Ferry B. (ed.), *L'Afrique face à ses défis démographiques. Un avenir incertain*, Paris, AFD–CEPED–Karthala, 155–195.

- IBISOMI L., DE WET N., 2014, The dynamics of household structure in sub-Saharan Africa, in Odimegwu C., Kekovole J. (eds.), *Continuity and change in sub-Saharan Africa*, New York, Routledge, 173–191.
- INTERNATIONAL LABOUR OFFICE, 2018, *World employment social outlook: Trends 2018*, Geneva.
- IZUGBARA C., WEKESAH F., TILAHUN T., DIMBELE Z., AMO-ADJEI J., 2018, *Family planning in East Africa: Trends and dynamics*, Nairobi, APHRC.
- JEDWAB R., CHRISTIAENSEN L., GINDELSKY M., 2017, Demography, urbanization and development: Rural push, urban pull and... urban push? *Journal of Urban Economics*, 98(C), 6–16.
- JEJEEBHOY S., 1995, *Women's education, autonomy, and reproductive behaviour: Experience from developing countries*, Oxford, Oxford University Press.
- KHARSANY A., KARIM Q., 2016, HIV infections and AIDS in sub-Saharan Africa: Current status, challenges and opportunities, *The Open AIDS Journal*, 10, 34–48.
- KINZIUNGA F., SCHOUMAKER B., 2018, *Fatherhood in sub-Saharan Africa patterns, trends and differentials in men's age at first birth*, Meeting of the Population Association of America, Denver.
- KOSKI A., CLARK S., NANDIA A., 2017, Has child marriage declined in sub-Saharan Africa? An analysis of trends in 31 countries, *Population and Development Review*, 43(1), 7–29.
- LAN S., 2015, State regulation of undocumented African migrants in China: A multi-scalar analysis, *Journal of Asian and African Studies*, 50(3), 289–304.
- LANKOANDE B., 2016, Monitoring adult mortality by type of residence in the absence of death registration: A perspective from Burkina Faso, *International Journal of Population Studies*, 2(1), 21–37.
- LARMARANGE J., BENDAUD V., 2014, HIV estimates at second subnational level from national population-based surveys, *AIDS*, 28(Suppl. 4), S469–S476.
- LARMARANGE J., VALLO R., YARO S., MSELLATI P., MÉDA N., 2011, Méthodes pour cartographier les tendances régionales de la prévalence du VIH à partir des Enquêtes démographiques et de santé (EDS), *Cybergeo: European Journal of Geography*, <https://doi.org/10.4000/cybergeo.23782>
- LERIDON H., 2015, Afrique subsaharienne: Une transition démographique explosive, *Futuribles*, 407, 5–21.
- LESSAULT D., BEAUCHEMIN C., 2009, Ni invasion, ni exode: Regards statistiques sur les migrations d'Afrique subsaharienne, *Revue européenne des migrations internationales*, 25(1), 163–194.
- LESTHAEGHE R., 1989, Social organization, economic crises, and the future of fertility control in Africa, in Lesthaeghe R. (ed.), *Reproduction and social organization in sub-Saharan Africa*, Berkeley, University of California Press, 475–505.
- LESTHAEGHE R., 2014, *The fertility transition in sub-Saharan Africa into the 21st century*, Center for Population Studies, University of Michigan, PSC Research Reports, 14–823.
- LESTHAEGHE R., KAUFMAN G., MEEKERS D., 1989, The nuptiality regimes in sub-Saharan Africa, in Lesthaeghe R. (ed.), *Reproduction and social organization in sub-Saharan Africa*, Berkeley, University of California Press, 238–337.
- LOCOH T., MOUVAGHA-SOW M., 2008, An uncertain future for African families, in Thorton A., Jaljakody R., Axinn W. (eds.), *International family change: Ideational perspectives*, Mawah, Laurence Earlbaum and Associates, 45–80.
- LOSCH B., 2012, Prévention des crises en Afrique subsaharienne. Relever le défi de l'emploi: l'agriculture au centre, *Perspective*, 19, October.

- LOSCH B., 2016, Appuyer les dynamiques territoriales pour répondre au défi de l'emploi des jeunes ruraux, *Afrique contemporaine*, 259(3), 118–122.
- LUCAS D., EDGAR B., 2015, *Zimbabwe's exodus to Australia*, Waterloo, International Migration Research Centre, SAMP Migration Policy Brief No. 30.
- LUTZ W., BUTZ W., KC S., 2014, *World population and human capital in the twenty-first century*, Oxford, Oxford University Press.
- LUTZ W., CUARESMA J. C., KEBEDE E., PRSKAWETZ A., SANDERSON W. C., STRIESSNIG E., 2019, Education rather than age structure brings demographic dividend, *PNAS*, 116(26), 12798–12803.
- MAHARAJ P. (ed.), 2013, *Aging and health in Africa. International perspectives on aging*, vol. 4, Boston, Springer.
- MAIGA A., BOCQUIER P., 2016, Dynamiques urbaines et santé des enfants en Afrique subsaharienne: Perspectives théoriques, *African Population Studies*, 30(1), 2213–2226.
- MASQUELIER B., KANTÉ A. M., 2017, Mortality, health and aging in sub-Saharan Africa, in Groth H., May J. (eds.), *Africa's population: In search of a demographic dividend*, Cham, Switzerland, Springer, 267–281.
- MASQUELIER B., RENIERS G., 2018, AIDS and the gender gap in life expectancy in Africa, *Population & Societies*, 554, April.
- MASQUELIER B., RENIERS G., PISON G., 2014, Divergences in mortality trends in sub-Saharan Africa: Survey evidence on the survival of children and siblings, *Population Studies*, 68(2), 161–177.
- MASWIKWA B., RICHTER L., KAUFMAN J., NANDI A., 2016, Lois sur l'âge minimum du mariage et prévalence du mariage précoce et de la maternité à l'adolescence: données d'Afrique subsaharienne, *Perspectives internationales sur la santé sexuelle et génésique*, special issue, 29–39.
- MAY J., GUENGANT J.-P., 2014, Les défis démographiques des pays sahéliens, *Études*, 6, 19–30.
- MAY J., GUENGANT J. P., BARRAS V., 2017, Demographic challenges of the Sahel countries, in Groth H., May J. (eds.), *Africa's population: In search of a demographic dividend*, Cham, Switzerland, Springer, 165–177.
- MEEKERS D., GAGE A., 2017, Marriage patterns and the demographic dividend, in Groth H., May J. (eds.), *Africa's population: In search of a demographic dividend*, Cham, Switzerland, Springer, 251–265.
- MEJÍA-GUEVARA I., ZUO W., BENDAVID E., LI N., TULJAPURKAR S., 2019, Age distribution, trends and forecasts of under-5 mortality in 31 Sub-Saharan countries: A modelling study, *PLoS Medicine*, 16(3), e1002757.
- MENASHE-OREN A., STECKLOV G., 2018, Rural/urban population age and sex composition in Sub-Saharan Africa, 1980–2015, *Population and Development Review*, 44(1), 7–35.
- MERCANDALLI S., LOSCH B. (eds.), 2017, *Rural Africa in motion. Dynamics and drivers of migration south of the Sahara*, FAO-CIRAD.
- MILAZZO A., VAN DE WALLE D., 2017, Women left behind? Poverty and headship in Africa, *Demography*, 54(3), 1119–1145.
- MORELAND S., MADSEN E., 2017, Demographic dividend models, in Groth H., May J. (eds.), *Africa's population: In search of a demographic dividend*, Cham, Switzerland, Springer, 453–467.
- MOULTRIE T., SAYI T., TIMÆUS I., 2012, Birth intervals, postponement and fertility decline in Africa: A new type of transition? *Population Studies*, 66(3), 241–258.

- MOURJI F., FERRIÉ J.-N., RADI S., ALIOUA M., 2016, *Les migrants subsahariens au Maroc. Enjeux d'une migration de résidence*, Rabat, Konrad Adenauer Stiftung and Université internationale de Rabat.
- NAPPA J., SCHOUMAKER B., PHONGI A., FLAHAUX M.-L., 2019, Economic hardship and transformation of unions in Kinshasa, *Population*, 74(3), 257–280.
- ODIMEGWU C., KEKOVOLÉ J. (eds.), 2014, *Continuity and change in sub-Saharan Africa*, New York, Routledge.
- OFPPRA, 2018, *À l'écoute du monde. Rapport d'activité 2018*, Paris, Office français de protection des réfugiés et apatrides, [www.ofpra.gouv.fr](http://www.ofpra.gouv.fr)
- ORTEGA J. A., 2014, A characterization of world union patterns at the national and regional level, *Population Research and Policy Review*, 33(2), 161–188.
- PAGE H., LESTAEGHE R. (eds.), 1981, *Child spacing in tropical Africa: Tradition and change*, New York, Academic Press.
- PILON M., 2018, Démographie, éducation et développement en Afrique, *Marché et organisations*, L'Harmattan, 32(2), 63–85.
- PILON M., VIGNIKIN K., 2006, *Ménages et familles en Afrique subsaharienne*, Les Archives contemporaines–AUF.
- PILON M., PISON G., 2020 (pre-print), Quelles perspectives démographiques pour l'Afrique d'ici 2050? in Gabas J. J., Lautier M., Vernières M. (eds.), *Prospectives du développement*, Paris, Karthala Gemdev.
- PILON M., SEIDOU MAMA M., TICHIT C., 1997, Les femmes chefs de ménage: aperçu général et études de cas, in Pilon M., Locoh T., Vignikin K., Vimard P. (eds.), *Ménages et familles en Afrique. Approche des dynamiques familiales contemporaines*, Paris, CEPED, 167–193.
- PILON M., LOCOH T., VIGNIKIN K., VIMARD P. (eds.), 1997, *Ménages et familles en Afrique. Approche des dynamiques familiales contemporaines*, Paris, CEPED.
- POTTS D., 2016, Debates about African urbanisation, migration and economic growth: What can we learn from Zimbabwe and Zambia? *The Geographical Journal*, 182(3), 251–264.
- RANDALL S., COAST E., LEONE T., 2011, Cultural constructions of the concept of household in sample survey, *Population Studies*, 65(2), 217–229.
- RENIERS G., MASQUELIER B., GERLAND P., 2011, Adult mortality in Africa, in Rogers R., Crimmins A. (eds.), *International handbook of adult mortality*, Dordrecht, Springer, 151–170.
- RESTREPO-MÉNDEZ M., BARROS A., WONG K., JOHNSON H. et al., 2016, Inequalities in full immunization coverage: Trends in low-and middle-income countries, *Bulletin of the World Health Organization*, 94(11), 794–805.
- ROMANIUK A., 2011, Persistence of high fertility in Tropical Africa: The case of the Democratic Republic of the Congo, *Population and Development Review*, 37(1), 1–28.
- ROSSIER C., SOURA A., DUTHÉ G. (eds.), 2019, *Inégalités de santé à Ouagadougou. Résultats d'un observatoire de population urbaine au Burkina Faso*, Paris, INED.
- RUTAREMWA G., 2014, Nuptiality patterns and differentials in sub-Saharan Africa, in Odimegwu C., Kekovole J. (eds.), *Continuity and change in sub-Saharan Africa*, New York, Routledge, 113–129.
- RUTSTEIN S., STAVETEIG S., WINTER R., YOURKAVITCH J., 2016, *Urban child poverty, health and survival in low-and middle-income countries*, DHS Comparative Reports No. 40, Rockville, Maryland, USA, ICF International.

- SAJOUX M., GOLAZ V., LEFÈVRE C., 2015, L'Afrique, un continent jeune et hétérogène appelé à vieillir: Enjeux en matière de protection sociale des personnes âgées, *Mondes en développement*, 171(3), 11–30.
- SANCHEZ-PAEZ D., ORTEGA J., 2018, Adolescent contraceptive use and its effects on fertility, *Demographic Research*, 38(art. 45), 1359–1388.
- SAWADOGO N., RANDALL S., BAZIÉ F., 2019, Mobilités familiales face à l'isolement des personnes âgées au Burkina Faso, *Gérontologie et société*, 41(158), 99–112.
- SAWYER C.C., 2012, Child mortality estimation: Estimating sex differences in childhood mortality since the 1970s, *PLOS Medicine*, 9(8), e1001287.
- SCHOUMAKER B., 2004, Pauvreté et fécondité en Afrique subsaharienne: Une analyse comparative des enquêtes démographiques et de santé, *Étude de la population africaine*, 9, 13–45.
- SCHOUMAKER B., 2017a, African fertility changes, in Groth H., May J. (eds.), *Africa's population: In search of a demographic dividend*, Cham, Switzerland, Springer, 197–211.
- SCHOUMAKER B., 2017b, Across the world, is men's fertility different from that of women? *Population & Societies*, 548, October.
- SCHOUMAKER B., 2019a, Male fertility around the world and over time: How different is it from female fertility? *Population and Development Review*, 45(3), 459–487.
- SCHOUMAKER B., 2019b, Stalls in fertility transitions in sub-Saharan Africa: Revisiting the evidence, *Studies in Family Planning*, 50(3), 257–278.
- SCHOUMAKER B., FLAHAUX M.-L., MANGALU MOBHE J., 2018a, Congolese migration in times of political and economic crisis, in Beauchemin C. (ed.), *Migration Between Africa and Europe*, Dordrecht, Springer, 35–79.
- SCHOUMAKER B., FLAHAUX M.-L., BEAUCHEMIN C., SCHANS D., MAZZUCATO V., SAKHO P., 2018b, African migration: Diversity and changes, in Beauchemin C. (ed.), *Migration Between Africa and Europe*, Dordrecht, Springer, 189–215.
- SEDGH G., BEARAK J., SINGH S., BANKOLE A., POPINCHALK A. et al., 2016, Abortion incidence between 1990 and 2014: Global, regional and subregional levels and trends, *The Lancet*, 388(10041), 258–267.
- SHAPIRO D., 2012, Women's education and fertility transition in sub-Saharan Africa, *Vienna Yearbook of Population Research*, 10, 9–30.
- SHAPIRO D., 2017, Women's education, infant and child mortality, and fertility decline in urban and rural sub-Saharan Africa, *Demographic Research*, 37(art. 21), 669–708.
- SHAPIRO D., 2019, *Adjusting for nonnumeric responses regarding ideal number of children: Evidence from sub-Saharan Africa*, Population Association of America, Austin.
- SHAPIRO D., GEBRESELASSIE T., 2008, Fertility transition in sub-Saharan Africa: Falling and stalling, *African Population Studies*, 23(1), 3–23.
- SHAPIRO D., GEBRESELASSIE T., 2014, Marriage in sub-Saharan Africa: Trends, determinants and consequences, *Population Research and Policy Review*, 33(2), 229–255.
- SOURA B.A., 2009, *Analyse de la mortalité des enfants à Ouagadougou. Inégalités spatiales, effets individuels et contextuels*, Louvain-la-Neuve, Presses universitaires de Louvain.
- SPOORENBERG T., 2019, Forty years of fertility changes in the Sahel, *Demographic Research*, 41(art. 46), 1289–1314.
- STREATFIELD P. K., KHAN W. A., BHUIYA A., HANIFI S. M. A., ALAM N. et al., 2014, Cause-specific mortality in Africa and Asia: Evidence from INDEPTH health and demographic surveillance systems sites, *Global Health Action*, 7, 25362.



- TABUTIN D., SCHOUMAKER B., 2004, The demography of sub-Saharan Africa from the 1950s to the 2000s. A survey of changes and a statistical assessment, *Population*, 59(3–4), 457–556.
- TABUTIN D., MASQUELIER B. (eds.), 2014, *Ralentissements, résistances et ruptures dans les transitions démographiques*, Presses universitaires de Louvain.
- TABUTIN D., MASQUELIER B., 2017, Mortality inequalities and trends in low- and middle-income countries, 1990–2015, *Population*, 72(2), 219–296.
- TABUTIN D., GOURBIN C., BENINGUISSE G., 2007, Surmortalité et santé des petites filles en Afrique. Tendances des années 1970 aux années 2000, in Locoh T. (ed.), *Genre et sociétés en Afrique. Implications pour le développement*, Paris, INED, 137–169.
- TIMÆUS I., JASSEH M., 2004, Adult mortality in sub-Saharan Africa: Evidence from demographic and health surveys, *Demography*, 41(4), 757–772.
- TIMÆUS I., MOULTRIE T., 2013, Distinguishing the impact of postponement, spacing and stopping on birth intervals: Evidence from a model with heterogeneous fecundity, *Journal of Biosocial Science*, 45(3), 311–330.
- TSUI A., BROWN W., LI Q., 2017, Contraceptive practice in sub-Saharan Africa, *Population and Development Review*, 43(S1), 166–191.
- TURBAT V., 2017, The demographic dividend: A potential surplus generated by a demographic transition, in Groth H., May J. (eds), *Africa's population: In search of a demographic dividend*, Cham, Switzerland, Springer, 181–195.
- UN HABITAT, 2014, *The state of African cities 2014: Re-imagining sustainable urban transitions*, Nairobi, United Nations Human Settlements Programme.
- UN IGME (UNITED NATIONS INTER-AGENCY GROUP FOR CHILD MORTALITY ESTIMATION), 2017, *Levels and trends in child mortality. Report 2017*, Geneva, UNICEF–WHO–WB.
- UNAIDS, 2018, *UNAIDS data 2018*, Geneva.
- UNAIDS, 2013, *Location, location. Connecting people faster to HIV services*, Geneva.
- UNDP, 2015 and 2016, *Human development report*, New York, United Nations.
- UNDP, 2016, *Africa human development report 2016. Accelerating gender equality and women's empowerment in Africa*, New York, United Nations.
- UNDP, 2018, *Statistical update 2018. Human development indices and indicators*, New York, United Nations.
- UNDP, 2019, *Human development report 2019. Beyond income, beyond averages, beyond today: Inequalities in human development in the 21st century*, New York, United Nations.
- UNEP, 2016, *GEO-6 Regional assessment for Africa*, Nairobi, United Nations Environment Programme.
- UNESCO, 2015, *Rapport mondial de suivi de l'éducation pour tous 2015*, Montréal, Institut de statistiques de l'Unesco.
- UNESCO, 2017, Literacy rates continue to rise from one generation to the other, Montreal, UNESCO Institute for Statistics, *UIS Fact Sheet*, 47.
- UNESCO, 2018, One in five children, adolescents and youth is out of school, Montreal, UNESCO Institute for Statistics, *UIS Fact Sheet*, 48.
- UNHCR, 2018, *UNHCR Statistics: The World in numbers*, Geneva, UNHCR, popstats, unhcr.org.
- UNITED NATIONS, 2011, *Sex differentials in childhood mortality*, New York, United Nations Population Division, ST/ESA/SER.A/314.
- UNITED NATIONS, 2013, *World mortality report 2013*, New York, United Nations Population Division, ST/ESA/SER.A/347.
- UNITED NATIONS, 2015, *Objectifs du Millénaire pour le développement. Rapport 2015*, United Nations, New York.

- UNITED NATIONS, 2017a, *Rapport économique sur l'Afrique: l'industrialisation et l'urbanisation au service de la transformation de l'Afrique*, Addis Ababa, Commission économique pour l'Afrique.
- UNITED NATIONS, 2017b, *African gender and development index regional synthesis report: Measuring gender equality and women's empowerment in Africa*, Addis-Ababa, United Nations Economic Commission for Africa.
- UNITED NATIONS, 2017c, *International Migration Report*, New York, United Nations Population Division, ST/ESA/SER.A/403.
- UNITED NATIONS, 2017d, *International migrant stock: The 2017 Revision*, New York, United Nations Population Division.
- UNITED NATIONS, 2018, *World urbanization prospects*, New York, United Nations Population Division.
- UNITED NATIONS, 2019a, *World population prospects 2019: Highlights*, New York, United Nations, ST/ESA/SER.A/423, [www.unpopulation.org](http://www.unpopulation.org)
- UNITED NATIONS, 2019b, *Estimates and projections of family planning indicators 2019*, New York, United Nations, [www.un.org/en/development/desa/population/theme/family-planning/cp\\_model.asp](http://www.un.org/en/development/desa/population/theme/family-planning/cp_model.asp)
- UNITED STATES DEPARTMENT OF HOMELAND SECURITY, 2019, *Yearbook of immigration statistics*, Washington DC, U.S. Department of Homeland Security, Office of Immigration Statistics.
- USAID, 2013, *Indicators of child deprivation in sub-Saharan Africa: Levels and trends from the Demographic and Health Surveys*, DHS Comparative Reports, 32, Rockville, Maryland, USA, ICF International.
- USAID, 2016, *Urban child poverty, health, and survival in low- and middle-income countries*, DHS Comparative Reports, 40, Rockville, Maryland, USA, ICF International.
- VALLIN J. (ed.), 2009, *Du genre et de l'Afrique. Hommage à Thérèse Locoh*, Paris, INED.
- VAN DE WALLE É., 2006, *African households. Census and surveys. A general demography of Africa*, Armonk, New York, M.E. Sharpe.
- VICKSTROM E., 2014, Pathways into irregular status among Senegalese migrants in Europe, *International Migration Review*, 48(4), 1062–1099.
- VIGNIKIN K., VIMARD P. (eds.), 2005, *Familles au Nord, Familles au Sud*, Louvain-la-Neuve, Academia-Bruylant.
- WHITEHOUSE B., 2017, The exaggerated demise of polygyny: Transformations in marriage and gender relations in West Africa, in Riley N., Brunson J. (eds.), *International handbook on gender and demographic processes*, Dordrecht, Springer, 299–313.
- WHITESIDE A., ZEBRYK N., 2017, New and re-emerging infectious diseases in sub-Saharan Africa, in Groth H., May J. (eds.), *Africa's population: In search of a demographic dividend*, Cham, Switzerland, Springer, 299–313.
- WHO, 2015, *State of inequality. Reproductive, maternal, and child health*, Geneva, World Health Organization.
- WHO, UNICEF, UNPF, WORLD BANK, UNITED NATIONS POPULATION DIVISION, 2015, *Tendances de la mortalité maternelle: 1990-2015. Résumé d'orientation*, Geneva.
- WHO, 2016, *Global strategy on human resources for health: Workforce 2030*, Geneva, World Health Organization.
- WHO, 2018a, *Atlas of African health statistics 2018*, Brazzaville, Regional office for Africa.
- WHO, 2018b, *World health statistics 2018: Monitoring health for the SDGs*, Geneva, World Health Organization.
- WORLD BANK, 2017, *World development indicators 2017*, <http://datacatalog.worldbank.org/>



- WORLD BANK, 2019, *World development report: The changing nature of work*, Washington DC.
- XENOS C., 1991, Family planning and fertility change in Mauritius, in Lutz W., Toth F. (eds.), *Population and sustainable development: Mauritius*, Laxenburg, IIASA, 67–86.
- ZEBA A., DELISLE H., RENIER G., SAVADOGO B., BAYA B., 2012, The double burden of malnutrition and cardiometabolic risk widens the gender and socio-economic health gap: A study among adults in Burkina Faso (West Africa), *Public Health Nutrition*, 15(12), 2210–2219.

## Dominique TABUTIN, Bruno SCHOUMAKER • THE DEMOGRAPHY OF SUB-SAHARAN AFRICA IN THE 21ST CENTURY. TRANSFORMATIONS SINCE 2000, OUTLOOK TO 2050

This article provides both an in-depth overview of the major sociodemographic and health changes that have occurred in sub-Saharan Africa (47 countries, 1.1 billion inhabitants) since 2000, as well as a statistical assessment using the most reliable recent data on each country. We examine developments in nuptiality and the family, fertility and its intermediate variables, child and adult mortality, migration and urbanization, and population size and age structures. We conclude by considering the population prospects and challenges to be met by 2050 in education, health, and employment. While Africa will continue to have the highest population growth and the youngest population in the world throughout the 21st century, various transformations are under way, albeit at different paces across regions, countries, places of residence, and social groups, leading to an increasing diversification of sub-Saharan demographic regimes and to significant social and spatial inequalities. Most countries have just experienced their first decline in fertility, contraceptive use has increased, but the demand for children remains high. Age at first union is rising everywhere, polygamy is declining, but age disparities between partners and the proportion of adolescent marriages are still substantial. Mortality (especially child mortality), however, has seen a remarkable decline on the regional level, and life expectancy has considerably increased; AIDS is on the decline but far from having disappeared, maternal mortality remains high, and noncommunicable diseases are on the rise, resulting in an epidemiological double burden. Sub-Saharan Africa is urbanizing though at various paces and more slowly than was imagined 20 years ago. The number of large cities and megacities is also increasing. International migration has been rising sharply since 2000, though still mostly within the continent, with a greater diversity of destinations and a decline in traditional models of migration outside Africa. Finally, according to the UN's medium-variant scenario, i.e. the most reasonable projection whereby the population will double by 2050 and more than triple by 2100, sub-Saharan Africa faces considerable challenges in education, health, employment, security, and sustainable development.

## Dominique TABUTIN, Bruno SCHOUMAKER • LA DÉMOGRAPHIE DE L'AFRIQUE SUBSAHARIENNE AU XXI<sup>e</sup> SIÈCLE. BILAN DES CHANGEMENTS DE 2000 À 2020, PERSPECTIVES ET DÉFIS D'ICI 2050

Consacrée à l'Afrique au Sud du Sahara (47 pays, 1,1 milliard d'habitants en 2020), cette chronique propose une synthèse approfondie des grands changements sociodémographiques et sanitaires survenus dans la région entre 2000 et 2020 et un bilan statistique rassemblant les données récentes les plus fiables sur chaque pays. Y sont examinées les évolutions de la nuptialité et de la famille, de la fécondité et de ses variables intermédiaires, de la mortalité (enfants et adultes), des migrations et de l'urbanisation, des effectifs de population et des structures par âge, et sont enfin considérées les perspectives de population et les défis à relever d'ici 2050 en matière de formation, santé et emploi. Si l'Afrique conservera tout au long du XXI<sup>e</sup> siècle la croissance démographique la plus élevée et la population la plus jeune du monde, divers changements sont en cours, mais à des rythmes variables selon les régions, les pays, les milieux d'habitat et les groupes sociaux, conduisant à une diversification croissante des régimes démographiques subsahariens et à de fortes inégalités spatiales et sociales. La fécondité vient, dans une majorité de pays, de connaître ses premiers reculs, la pratique contraceptive a augmenté, mais la demande d'enfants demeure élevée. Un peu partout, l'âge à la première union progresse, la polygamie recule, mais les écarts d'âges entre époux et les proportions de mariages d'adolescentes demeurent élevés. En revanche, la région dans son ensemble vient de connaître des reculs remarquables de la mortalité, notamment celle des enfants, et des gains notables d'espérances de vie ; le sida diminue mais est loin d'avoir disparu, la mortalité maternelle reste très élevée, les maladies non transmissibles progressent et conduisent à un double fardeau épidémiologique. L'Afrique s'urbanise mais à des rythmes divers, et plus lentement qu'on ne l'imaginait il y a encore 20 ans ; s'y multiplie aussi le nombre de grandes villes et de mégapoles. Quant aux migrations internationales, en forte progression depuis 2000, si une grande majorité d'entre elles se déroulent toujours à l'intérieur du continent, on assiste à une diversification des destinations et à un recul des modèles migratoires traditionnels hors du continent. Enfin, selon l'hypothèse moyenne, –la plus raisonnable– des Nations unies, soit un doublement de la population d'ici 2050 et plus qu'un triplement d'ici 2100, l'Afrique subsaharienne est face à des défis considérables en matière d'éducation, de santé, d'emploi, de sécurité et de développement durable.

**Dominique Tabutin, Bruno Schoumaker • DEMOGRAFÍA DEL ÁFRICA SUBSAHARIANA EN EL SIGLO XXI. BALANCE DE LOS CAMBIOS DE 2000 A 2020, PERSPECTIVAS Y DESAFÍOS DE AQUÍ A 2050**

Dedicada al África al sur del Sahara (47 países, 1 100 millones de habitantes en 2020) esta crónica propone a una síntesis profunda de los grandes cambios sociodemográficos y sanitarios ocurridos en la región entre 2000 y 2020, y un balance estadístico que reúne los datos recientes más fiables sobre de cada país. Se examinan las evoluciones de la nupcialidad y de la familia, de la fecundidad y sus variables intermediarias, de la mortalidad (niños y adultos), de las migraciones y de la urbanización, de los efectivos de población y de las estructuras por edad, y en fin son consideradas las perspectivas de población y los desafíos a afrontar de aquí a 2050 en materia de formación, de salud y de empleo. África conservará durante todo siglo XXI el crecimiento demográfico más elevado y la población más joven del mundo, pero los diversos cambios que están acaeciendo a ritmos variables según las regiones, los países, el hábitat y los grupos sociales, están onduciendo a una diversificación creciente de los regímenes demográficos subsaharianos y a fuertes desigualdades espaciales y sociales. En la mayoría de los países, la fecundidad ha experimentado sus primeros retrocesos; la práctica anticonceptiva ha aumentado, pero la demanda de hijos sigue siendo elevada. En todas partes, la edad a la primera unión aumenta y la poligamia disminuye, pero las diferencias de edad entre los esposos y las proporciones de matrimonios de adolescents siguen siendo elevadas. La región en su conjunto ha conocido un retroceso importante de la mortalidad, especialmente en los niños, y aumentos notables de la esperanza de vida; el SIDA retrocede pero está lejos de haber desaparecido y la mortalidad materna sigue siendo muy elevada, mientras que las enfermedades no transmisibles aumentan y generan una doble carga epidemiológica. África se urbaniza pero a ritmos muy diversos y más lentamente que se hubiera podido pensar hace solo 20 años. Aumenta también el número de grandes ciudades y megalópolis. En cuanto a las migraciones internacionales, en fuerte progreso desde el 2000, una mayoría de ellas se hace dentro del continente con una diversificación creciente de los destinos mientras que disminuyen los modelos migratorios tradicionales con destinos fuera del continente. Por último, según la hipótesis media -más razonable- de las Naciones Unidas, es decir, una duplicación de la población de aquí a 2050 y más que una triplicación de aquí a 2100, el África subsahariana se enfrenta a desafíos considerables en materia de educación, salud, empleo, seguridad y desarrollo sostenible.

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**Keywords:** sub-Saharan Africa, nuptiality, family, fertility, mortality, migration, growth, age structure, demographic dividend, social and spatial inequalities

Translated by Harriet Coleman, Catriona Dutreuilh, Paul Reeve, James Tovey, and Beatrice van Hoorn Alkema

