

# AFRICA'S POPULATION

IN SEARCH OF A DEMOGRAPHIC DIVIDEND

Edited by

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*« Africa needs a serious dialogue on population, the demographic transition, and the demographic dividend. This book with its comprehensive approach to the subject, touching on factors such as education, health, youth employment, governance, as well as direct fertility interventions, makes an invaluable contribution. A must read for policymakers and development practitioners. »*

**Ngozi Okonjo-Iweala**, Chair of the Global Alliance for Vaccines and Immunization (GAVI), former Finance Minister of Nigeria and former Managing Director of The World Bank.

*« Everyone concerned about human welfare in sub-Saharan Africa should know about the demographic dividend, what it is, what causes it and how to strengthen it. This volume provides an excellent summary of these crucial issues. The dividend can provide an important boosts to standards of living but it is not guaranteed. The sooner policymakers pay attention and take the proper actions, the better. »*

**John Bongaarts**, Vice President of the Population Council

*« There is no more important socio-economic issue for this century than that of whether Africa's currently rapid population growth turns out to be a dividend or a curse. If smart public policy can make it a dividend, then many countries in Africa really could emulate the 20th century economic-development "miracles" of Japan, China and others in East Asia. But if a curse, the consequences will affect the whole world. As a comprehensive, up-to-date guide to the potential and the challenges, this book deserves to be widely read and debated. »*

**Bill Emmott**, author, consultant and former Editor-in-Chief of The Economist

*« This book is of utmost strategic relevance for any globally active company. Any successful commercial long-term activity in emerging markets requires a sound understanding of the key drivers behind societal and economic transformation. For Africa in particular, the role of demographic change and the potential economic opportunities are all too often disregarded. »*

**Reto Francioni**, Chairman SWISS International Airlines, former CEO Deutsche Börse AG

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## Foreword

**Klaus Töpfer**, former Executive Director of the United Nations Environment Programme (UNEP) and the Institute for Advanced Sustainability Studies (IASS).

Africa! This huge, diverse continent - rich in natural treasures, rich in a young, dynamic population. Africa - for too long in the past sidelined in the political agenda of Europe. The continent suffered under the burden of colonialism and slavery, still embedded in the collective consciousness of its people and nations. In Europe, the image of Africa has until now been linked with poverty and underdevelopment, with civil unrest, weak governance, and corruption.

This picture does not reflect the reality of Africa in our time. As the Executive Director of the United Nations Environment Program (UNEP), I had the chance to live for eight years in Nairobi, Kenya, the headquarters of UNEP. Needless to say, there are still many problems - hundreds of thousands of people living in slum areas, high unemployment rates especially among young people, limitations in the quality and reliability of governance, a weak and vulnerable situation in all parts of the infrastructure - to mention but a few. On the other hand, I witnessed the dynamism of the young generation, the developments of schools and universities, the openness to the world, the integration on a global level due to an incredible increase in IT, in mobile telephones, and internet access. This young generation is more and more a partner on the global level, networking, learning, and teaching, proud of their cultural heritage while also aware of the gift of biodiversity, of the treasures of the creation.

The median age of the population in Africa is just above 20 years, compared with the median age in Germany, which is now up to 44 years of age. A young, dedicated population is first and foremost an immense opportunity for Africa, offering a paradigm shift in development - a development which will be better and better integrated into the protection of the natural environment, more able to extract its capital without destroying it. A development which is not dividing society, but instead is allowing for the possibility of a new middle class, which can stabilize African society beyond ethnic borders.

Of course, to realize this potential is an immense challenge, and comes with a price tag. These young people, better-educated and trained than their parents and grandparents, want to use their skills, and need employment which reflects their investment in knowledge. It is calculated that annually, Africa needs at least 18 million new jobs! This requires investment and a new entrepreneurial spirit. It is necessary to make energy available, keeping in mind that economic progress is always dependent upon the availability of achievable, competitive, environmentally safe, and socially integrated energy sources. In my time in Kenya, only some 10 percent of the population had access to electricity or to any other form of modern energy - clearly not a solid basis upon which to realize the "right of development", enshrined already at the Rio Conference 1992 in the "Rio Principles". The likelihood that the African dream of becoming a young, prosperous, and self-conscious partner in the globalized world will be a reality, depends on those investments. First and foremost of course, investment in the brains of the young people, and next in energy technologies and in a spirit of reliability and future orientation.

This broad-based publication, *Africa's Population: In Search of a Demographic Dividend*, is a great contribution to the understanding of perspectives on Africa and its requirements. This is not a reflection of "silo thinking". It uses many kinds of knowledge, both to form its analysis, and, primarily, to form a diagnosis of the given situation. We aim to offer a reliable basis of knowledge, necessary for tailoring strategic perspectives and for implementing them in an open, flexible way. I sincerely hope that this book is successful in motivating politicians, but also entrepreneurs in the private business sector and members of civil society more generally, to understand Africa better, and to bring this marvelous continent into the center of common coordinated action.

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# Africa's Population: In Search of a Demographic Dividend

## Introduction

The concept of the demographic dividend (DD), i.e., the accelerated economic growth and increasing surplus resulting from an expansion of the working-age population with respect to the young dependent population, was formulated after a closer examination of the East Asian “economic miracle”, which occurred between the 1960s and 1990s. In order to fully explain the rapid economic growth that took place in East Asia, demographers, economists, and social scientists were compelled to take into account the significant shifts in age structures, which were triggered by rapid fertility declines. It was estimated that the increasing weight of the number of active adults relative to their young dependents accounted for about 40 percent of the economic growth that had been observed in the region at the time. This analysis of the East Asian “economic miracle” led to the formulation of the concept of the DD.

Today, there is only one region in the world, namely sub-Saharan Africa (SSA) (all of Africa except Northern Africa) that has still to undergo the major demographic and age structure transformations, which have occurred almost everywhere else in the world during the demographic transition. This process is characterized by the gradual decrease from high to low birth and death rates, reaching a new equilibrium. Three African sub-regions in particular, i.e., Western, Central, and Eastern Africa are still far from having completed their fertility transition, which is the last stage of the demographic transition.

Indeed, the striking demographic feature of most of SSA is the apparent disconnect between rapidly decreasing mortality rates, especially for infants and children, on the one hand, and the slow erosion of high fertility levels, often interrupted by protracted fertility stalls, on the other. Moreover, the longer lag which occurs in many SSA countries between the decline in mortality and the decrease in fertility makes the African demographic transition patterns sharply different from what most developing countries experienced during the 20<sup>th</sup> century.

Whereas the populations of all other regions of the world increased significantly between 1500 and 1900, Africa's population virtually stagnated during that period, due to the heavy toll of infectious diseases and the negative impact of the slave trade. This bleak picture, however, does not apply anymore. Ongoing decreases in mortality, slow declines of high fertility levels as well as fertility stalls, and the effect of very young age structures – a phenomenon known as the “population momentum” – all concurred to fuel the rapid and unprecedented growth of the African population in recent decades.

In the future, the African continent is poised to experience a further demographic expansion. Its population of 1.2 billion persons in 2015 could possibly reach 2.5 billion in 2050, and 4.4 billion by the end of this century, according to the 2015 Revision (Medium Variant) of the *World Population Prospects* of the United Nations Population Division. There is no doubt that the world demographic landscape of the 21<sup>st</sup> century will be heavily influenced by the potential quadrupling of the African population. In addition to shaping the future development prospects of the African continent itself, these trends will also influence global geopolitics and in particular the demographic trajectory of Europe due to potentially increasing migration flows.

To be sure, sub-Saharan Africa is extremely diverse in terms of geography, ecosystems, resources, history, cultures, ethnic groups, and languages. The 48 sovereign countries of SSA are also at various stages of their demographic transition (Southern African countries are the most advanced in this process). Many African countries are experiencing sustained urbanization as well as rapid uptakes in female education, which might accelerate the demographic transformations. As a whole, however, the continent is still far from reaching the necessary low levels of fertility that would transform its age structures, bring a rectangular shape to the bottom of the population pyramids, and henceforth trigger the shift between the adults of working ages and the young dependents. Many SSA countries are still several decades away from achieving the women's health improvements and the contraceptive revolution (when at least 70% of couples use a modern contraceptive method) that are needed to obtain such low levels of fertility. Therefore, the opening of the demographic window of opportunity, which is a necessary condition to capture a first demographic dividend, might remain a rather distant prospect in many SSA countries. A second demographic dividend may occur in the future when the beneficiaries of the first DD will have sufficiently saved and invested the resources generated earlier.

Nonetheless, the question of the first demographic dividend in SSA countries has become prominent in international development circles over the past 15 years and is at the heart of the current discussions pertaining to the development of Africa and its integration into the global economy. A potential sharp decline in fertility, which brings more favorable dependency ratios, does offer economic opportunities but presents also challenges when governments are unable to fulfill the aspirations of their populations, especially of the youth—a generation which is desperate for education and knows how to maximize modern digital technology.

Could the 48 sovereign countries of SSA benefit also from an Asia-style first and thereafter second demographic dividend? Will entire countries reap a first DD, or will only the most advanced segments of their population do so? What policies should be put into place to obtain such a dividend? Are socioeconomic improvements sufficient to bring about the needed demographic transformations or are specific demographic interventions necessary as well? Should additional interventions be put also in place, including human capital investments and good governance policies? Last but not least, what interventions should be designed to achieve poverty reduction as well as shared prosperity and reduce inequality?

There are no simple answers to these multiple questions, despite the great efforts that have been applied to the examination of the concept of the demographic dividend during the past 15 years by the African governments and policymakers as well as their development partners (the multilateral and bilateral agencies, the universities and research centers, the NGOs, and the philanthropic foundations). In this context, it appears that the time is ripe for an updated, comprehensive volume on the DD in SSA that focuses specifically on: (a) the links between the demographic and epidemiological transitions, the fertility decline, the contraceptive revolution, and the demographic dividend itself; and (b) the key drivers of the DD, such as education, skills, status of women, and public policies.

However, the right combination of policies to accelerate the fertility transition in sub-Saharan Africa remains open to debate. In addition to family planning and reproductive health interventions, it has become evident that changes of reproductive norms, later age at first marriage, enhanced female education, women's empowerment, and gender equitable policies are also poised to play a paramount role. Still, one will need to intervene directly on the fertility trends. This can be achieved with some degree of efficiency, while abiding also by the framework of the reproductive rights adopted at the International Conference on Population and Development (ICPD) held in Cairo in September 1994.

The DD is not a given but must be earned through adequate and timely population dynamics as well as socioeconomic and good governance policies. SSA countries will also need to foster human capital formation, through enhanced efforts in the areas of education, health, and women's status as well as the promotion of equal opportunities for men and women. Special attention will also be needed for the youth, in particular with respect to jobs creation, which will require a favorable political and economic environment. This tall order calls for a true vision, a strong determination, and proactive interventions on the part of African leaders and their development partners. However, many African policymakers adhere to the view that large population numbers by themselves will warrant future economic strength, and that socioeconomic development alone will bring the necessary demographic modernization. Moreover, too few African leaders advocate for more direct interventions to bring down high fertility levels.

At this juncture, it appears that the demographic dimensions of African development prospects have yet to be fully taken into account. The current climate of optimism about the socioeconomic prospects of SSA should not overshadow the importance of the demographic issues at hand. On the contrary, it appears that tackling the SSA population challenges will be a necessary condition for the region to reach its demographic window of opportunity, capture a first demographic dividend, and eventually join the group of the emerging market economies.

This book analyzes the possibility for SSA to reap the benefits of a demographic dividend and reviews the various conditions that must be met. It contains contributions by respected international scholars, of which more than a third are from sub-Saharan Africa (SSA).

The first section of the volume, *Sub-Saharan Africa's Population: Country and Regional Case Studies*, presents the demographic landscape of sub-Saharan Africa. The initial chapter *Africa's Population: History, Current Status, and Projections* by Jean-Pierre Guengant presents the overall demographic patterns and trends of the region, and stresses the key role that fertility will play for the future demographic situation of the continent. The three subsequent chapters focus on the three demographic heavyweights of the continent. These chapters are *Reaping a Demographic Dividend in Africa's Largest Country: Nigeria* by Emmanuel Jimenez and Muhammad Ali Pate; *The Second Biggest African Country Undergoing Rapid Change: Ethiopia* by Assefa Hailemariam; and *The Third Biggest African Country: The Democratic Republic of the Congo* by David Shapiro, Basile O. Tamashe, and Anatole Romaniuk. Only Ethiopia appears to have embarked in earnest on its fertility transition. Nigeria, the most populous country in sub-Saharan Africa, has still a high fertility and so does the Democratic Republic of the Congo. More worrisome, one can see no reasonable prospects for a rapid fertility decline in these two countries. The chapter *A Case of Almost Complete Demographic Transition: South Africa* by Tom. A. Moultrie shows that the country has almost completed its demographic transition. Unfortunately, South Africa had been unable to reap the benefits of a first demographic dividend because of the impact of the HIV/AIDS epidemic.

Then, four chapters examine the situation of SSA countries, according to their respective stage in the fertility transition. The chapter *Fertility Transitions and Schooling Dividends in Sub-Saharan Africa: The Experience of Vanguard Countries* by Parfait M. Eloundou-Enyegue and Noah Hirschl focuses on the countries that are most advanced in their fertility transition, namely the Southern African countries and two island-countries, Cape Verde and Mauritius. Another chapter *Countries with Fertility Transitions in Progress* by Jean-François Kobiané and Moussa Bougma looks at countries where fertility transition is advancing: Benin, Gabon, Ghana, Kenya, and Rwanda. The following chapter *Countries with Slow and Irregular Fertility Transitions* by Gervais Beninguisse and Liliane

Manitchoko examines the countries with slow and irregular fertility transitions: Cameroon, Comoros, Côte d'Ivoire, Guinea, Mozambique, Senegal, and Tanzania. Finally, a chapter *Countries with Very Slow or Incipient Fertility Transitions* by Hamidou Issaka Maga and Jean-Pierre Guengant is devoted to the late comers in the fertility transition, e.g., Mali and Niger. These four chapters all stress that better female education outcomes and family planning programs are the key factors for accelerating or initiating a fertility decline.

Finally, a chapter *Demographic Challenges of the Sahel Countries* by John F. May, Jean-Pierre Guengant, and Vincent Barras is devoted to the demographic situation of this region. In addition to their rapid demographic growth, the Sahel countries face formidable challenges given their unfavorable geography and their fragile geopolitical situation, not to mention the threat of climate change.

The second part of the book, *Drivers of the Demographic Dividend*, looks at the triggering factors of the demographic dividend. A first, theoretical chapter *The Demographic Dividend in Asia and Sub-Saharan Africa* by Vincent Turbat raises some key questions related to the measurement of the demographic dividend. In particular, the chapter challenges the usual definition of both the young dependents (below age 15) and the adult active population (all persons between age 15 and 64). Instead, the chapter proposes a more precise calculation of the young dependents (until age 18) and the active adults (age group 19 to 64, also taking out the unemployed and underemployed adults). The implications of these new measurements are less optimistic than those derived from traditional calculations.

This is followed by a series of technical chapters. The first one *African Fertility Changes* by Bruno Schoumaker examines the SSA fertility patterns. Fertility levels are still high in the region and decreasing at a slow pace. However, a few countries have experienced significant fertility declines. Furthermore, evidence from urban and educated women indicates that fertility could eventually decline in the continent should socio-economic and literacy conditions improve and efficient family planning programs be in place.

The next chapter *Access to Family Planning and Women's Health* by Ndola Prata shows the multiple health benefits of family planning interventions as well as the cost-effectiveness of such interventions. However, family planning programs will need to be strengthened in the region, offering a larger choice of effective and long-term methods.

The following chapter *Manpower, Education, Skills, and Jobs in Sub-Saharan Africa* by Nicholas Eberstadt offers both a retrospective and prospective analysis and covers also productivity. The metrics of education is generally based on years of schooling but the quality of education is more difficult to measure. It appears that the poor quality of education in the region should not be conducive to major improvements in productivity. The chapter also highlights the dearth of reliable data on employment, precluding the preparation of jobs projections.

The chapter *Marriage Patterns and the Demographic Dividend* by Dominique Meekers and Anastasia Gage examines how age at first marriage, adolescent marriage rate, premarital childbearing, and the prevalence of polygynous unions may affect SSA's prospects to reap a first demographic dividend. The chapter calls for policies and programs to be put in place to expand women's access to sexual and reproductive health information and services.

The chapter *Mortality, Health, and Aging in Sub-Saharan* by Bruno Masquelier and Almany Malick Kanté highlights that despite impressive gains in under-five mortality rates in the last decade, low

survival prospects, especially among adults, are holding back development and reducing the chance of reaping a demographic dividend.

The chapter *Acute and Chronic Health Challenges in Sub-Saharan Africa: An Unfinished Agenda* by Thomas Zeltner, Farhad Riahi, and Jonas Huber examines the concept of the “Double Burden of Disease”. It discusses the prospects for controlling the non-communicable diseases, an endeavor that would possibly repeat the success obtained previously in the area of communicable diseases.

The chapter *New and Reemerging Infectious Diseases in Sub-Saharan Africa* by Alan Whiteside and Nick Zebryk discusses this major threat to sub-Saharan populations. In particular, the chapter covers HIV and AIDS and other epidemics in SSA. It addresses the origins, evolution, mortality, morbidity, socio-economic impacts as well as the policies and programs put in place to combat these epidemics.

The chapter on *Migration, Urbanization, and Slums in Sub-Saharan Africa* by Blessing Mberu, Donatien Béguy, and Alex Ezeh examines the impact of these trends on poverty, health, environment quality, and social welfare provision as well as the associated policy challenges and program responses.

Finally, the chapter *Internal and International Migration* by Nikola Sander and Elin Charles-Edwards highlights the impact of the migratory patterns on the relative size of the working age population, the ratio of children to the total population, and the education level of the population. The analysis points to three clusters of countries among which migration flows are concentrated. The chapter offers also an innovative visualization of the migration systems.

The third component of the volume, *Development Challenges*, addresses the specific issues that the continent will need to address.

The first chapter of this section *Economic Growth and Public and Private Investments* by Vincent Turbat identifies two main periods in SSA growth. From 1960 to around 2000, Africa experienced a “tragedy period”, i.e., a period of low growth and extreme poverty. In 2000-2015, Africa entered a “hope period”, resulting from improved macroeconomic policies and structural changes. To benefit from a first demographic dividend, fertility rates will need to fall sharply and rapidly. In addition, macroeconomic policies and structural reforms will need to be pursued vigorously.

The chapter *Governance, Transparency, and the Rule of Law* by Anna Zuber, Christian Blickenstorfer, and Hans Groth discusses the various concepts and measurements of good governance. The SSA countries scoring best on the different dimensions of good governance are also middle-income economies with advanced demographic transitions. These countries are most likely to benefit from a first demographic dividend in the near future, although it is difficult to isolate the specific contribution of good governance to the capturing of a first DD.

The following chapter *The Role of Natural Resources* by Daniel J. Mabrey stresses that Africa’s economic development will be driven by the extraction and monetization of these resources. The chapter discusses the negative economic impacts of the natural resources (the “resource curse”) and attempts to answer the key question: can natural resources development help Africa to reap a first demographic dividend?

The chapter *Population, Food Security, and Climate Change: Africa’s Challenges* by Jason Bremner assesses the situation of a continent where almost one in every four persons lacks adequate food for a healthy and productive life. The chapter stresses the importance of women’s empowerment to increase agricultural productivity. It also examines the issue of the food security crises, given the challenges of

rapid population growth and climate change, which causes recurrent drought in some parts of the continent.

The last chapter of this section *The Development of Organized Commodity Exchanges in Africa: An Economic Analysis* by Heinz Zimmermann and Marco Haase analyzes the commodity exchanges as a tool to address the food security challenges described in the previous chapter. The successful development of organized, standardized exchanges must be necessarily paired with steps toward improving the basic and financial infrastructure at the country level. However, the outright launch of futures markets might be an excessive step for most countries.

The fourth and last section of the book, *Assembling Sub-Saharan Africa's Jigsaw*, attempts to bring together the various threads examined so far.

The first chapter of this component *Is a Rapid Fertility Decline Possible? Lessons from Asia and Emerging Countries* by Feng Wang looks into the feasibility of a rapid fertility decline in the continent, in the light of the experience from other regions of the world. The chapter suggests that four key requirements need to be met for SSA countries to achieve a rapid fertility decline, as follows:

- Further improvement of infant/child and maternal health;
- Expansion of education, in particular female education;
- Creation of employment opportunities; and
- Expansion of state-sponsored family planning programs.

However, Africa faces greater challenges than other regions in achieving these four core conditions, in part because of its unique historical and institutional legacies.

The chapter *Demographic Dividend Models* by Scott Moreland and Elizabeth Leahy Madsen reviews the factors that are required to successfully achieve a demographic dividend. It also describes how these factors have been incorporated into various dynamics models that project the dividend, with a focus on the *DemDiv* model developed by the authors. The chapter is illustrated with an application of *DemDiv* model to Kenya and Uganda.

The following chapter *The Roles of Governments, the Private Sector, and the International Community* by Jotham Musinguzi stresses that countries will first need to address proactively the issue of high fertility levels. Thereafter, countries will need to implement socio-economic policies to strengthen their human capital (education, health, and gender equality) and improve their governance. This will need to be conducted in partnership with the private sectors as well as with the development institutions, the NGOs, and the philanthropic foundations.

Finally, a chapter *Conflicts and the Demographic Transition: Economic Opportunity or Disaster?* by Siri Aas Rustad, Gudrun Østby, and Henrik Urdal is devoted to the conflicts' impact on the prospects for capturing a first demographic dividend. The chapter shows that the demographic transition seems to come later in African conflict countries than in those who have not experienced conflict. The chapter also explores how different factors, such as education, fertility, health, ethnic distribution, migration, and urbanization can affect the ways in which demographic change impacts the risk of conflict.

The sub-title of this book, *In search of a Demographic Dividend*, points to the efforts that will be necessary to capture a first demographic dividend in the African 48 sovereign countries. By providing state of the art information on African demographic patterns, trends, and challenges, and by looking at

the various drivers of the demographic dividend as well as the sub-Saharan African development challenges, this volume is meant to enlighten African policymakers and the international community about the tremendous challenges, but also the potential opportunities, that will come with the ongoing demographic transformations of the continent.

The 21<sup>st</sup> century will be the century of the African demography. This evidence-based book is a clarion call for African policymakers and their partners to prepare a demography-informed development strategy for the region and, most importantly, to take urgently the necessary actions.

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## Conclusions

This academic volume provides new insights and experts' views into one of the greatest demographic challenges and its potential geopolitical implications in the 21<sup>st</sup> century, namely the current and prospective population dynamics of the African continent.

The analyses presented in the first section of the book, *Sub-Saharan Africa's Population: Country and Regional Case Studies*, highlight the demographic challenges of the 48 sovereign countries of sub-Saharan Africa (SSA), especially the slow decrease of their high fertility levels. The total fertility rate for the entire SSA region has decreased from 6.7 children per woman on average in 1970 to only 5.0 children in 2015 – a decline of less than 0.4 children per decade, a slow pace compared to the fertility transitions in other parts of the world. This first section examined the implications of these trends for the prospects to open a demographic window of opportunity and, thereafter, to capture a first demographic dividend (DD). The concept of the DD refers to the accelerated economic growth resulting from the changes in the age structure of the population. However, without the right policies and expanded access of the youth to employment, this potential bonus can rapidly turn out into a major challenge.

SSA countries are extremely different from each other as well as very diverse internally. The analysis explained why they are all at different stages of their demographic and, especially, their fertility transitions. Across sub-Saharan Africa, the total fertility rate varies from 7.6 children per woman in Niger to 2.6 in South Africa (fertility is lower in several small island-countries lying outside continental Africa). However, 62% of the SSA population still lives in countries where women give birth to 5 or more children on average. Among the 21 countries of the world with such high levels of fertility, only two, Afghanistan and Timor-Leste, are not located in SSA. As a whole, SSA is still very far away from achieving the women's health improvements in terms of information and access to services as well as the contraceptive revolution (when at least 70% of couples use a modern method of contraception) that are needed to usher a regime of low fertility. From the perspective of sustainable development for a nation in the 21<sup>st</sup> century, this should be a fertility level of 3 children per woman or less. Such lower levels of fertility are a necessary condition to balance the ratios of young dependents relative to the working age population, which is the *sine qua non* condition to capture a first DD.

Among the three largest countries of SSA, only Ethiopia appears to be on the way of reducing significantly its high fertility levels, and has already achieved an impressive decrease in fertility of 3 children per woman between 1990 and 2015. In these 25 years, fertility decreased on a national level from 7.2 to 4.1 children per woman, which is a sharp decline of 1.24 children per decade (this is three times the average fertility decline for SSA as a whole between 1970 and 2015). However, there are large urban/rural differentials in Ethiopia, like in many other SSA countries. Nigeria, the most populous country in SSA, and the Democratic Republic of the Congo still experience very high levels of fertility of 5.5 and 6.6 children per woman, respectively. But there are also promising developments: South Africa, an economic heavy-weight in SSA, has seen its fertility rates decline steadily from 6.1 children per woman in 1960-65 to 2.4 in 2010-15 (a decline of 0.7 children per decade over a period of 50 years). However, the catastrophe of the HIV/AIDS epidemic has precluded South Africa's prospects of capturing a demographic dividend. Still, the most problematic situations with nearly no fertility reductions at all are to be found in the Sahel region. The Sahel countries have the highest fertility rates in SSA (e.g., 7.6 children per woman on average in Niger), and their human capital prospects are bleak. These countries are also threatened by insecurity and social disruption, and

it should be mentioned that the challenge of climate change is not even taken into account in these pessimistic forecasts.

Turning to the *Drivers of the Demographic Dividend*, which are covered in the second component of this book, a chapter on the demographic dividend in Asia and sub-Saharan Africa raised some key questions, in particular how to calculate the number of dependent children and how to define the active workers because many adults are either unemployed or underemployed. As the chapter demonstrated, more pragmatic and detailed definitions of some key parameters of the DD are needed, especially those pertaining to the numbers of active adults and their young dependents.

With respect to fertility, which is the key driver of demographic change, the analyses presented in this book demonstrate again the huge diversity of situations. However, some fertility determinants are open to policy interventions. Therefore, broader and unrestricted access to family planning, the provision of women's health services, and the patterns of early marriage (marriage before age 18) will all need much more attention.

The prospects for health and life expectancy improvements in SSA appear promising, although some regions of the continent are affected by re-emerging and/or new infectious diseases such as HIV/AIDS, malaria, and tuberculosis. More recently, the outbreak of Ebola affected several coastal countries of Western Africa. The emergence of the Zika virus in Brazil in 2015 is another potential threat. Some countries are also facing a dual burden of disease, caused by the concomitant plight of both infectious and non-communicable diseases (chronic health conditions). Moreover, there is a third burden on the horizon: sooner or later, all SSA countries will need to tackle the issue of population aging. The United Nations project that the median age of the sub-Saharan population should increase from 18.3 years in 2015 to 34.2 years in 2100.

Sub-Saharan Africans are also very mobile. This is captured in the analysis of internal and international migration patterns, with a focus on the time period 1990 to 2010. Africans mostly migrate from rural areas to cities, but also across neighboring countries as well as throughout the continent. Despite their broad coverage in the Western media, African migration flows to Europe remain still at modest levels although this situation will probably change in the coming decades. Rapid urbanization and the emergence of slums (near the largest cities) are also major challenges that are linked in several ways to the capturing of a first demographic dividend.

The greatest challenges of all, however, appear to be those linked to manpower, education, skills, and employment. The International Monetary Fund (IMF) has estimated that 18 million new jobs are needed in SSA every year. In other words, SSA needs to create *every year* as many jobs as there are inhabitants today in Burkina Faso. Over the next 25 years, this amounts to a staggering total of 450 million new jobs. Unless the youth finds meaningful and decent employment, sub-Saharan societies are at great risk of facing an African version of the Arab Spring.

Sub-Saharan Africa also faces huge development issues, which were addressed in the third part of this volume, *Development Challenges*. Despite encouraging economic growth in recent years, SSA countries still need to diversify and strengthen their economies. This means not only improving the productivity of the agricultural sector, which will provide the bulk of the needed employment, but also increasing the productivity of the services and, more importantly, expanding the manufacturing sector.

Good governance (transparency and accountability), and the rule of law will be major policy levers that will be needed as the "solid ground floor" in order to facilitate future socioeconomic development.

The management of natural resources will also need improvement. Africa has more resource-rich states than any region in the world. However, the challenge will be to use judiciously those resources in order to help capturing a first demographic dividend.

Several regions of the continent face the threat of climate change, which will impinge on their prospects to achieve both food and water security. Again, the Sahel region comes to the fore, and so does the Horn of Africa. These fragile ecosystems cover huge areas, and their populations have the fastest demographic growth and the lowest levels of human development of the entire continent.

Agricultural commodities are a key component of ensuring food security as well as a major engine of the sub-Saharan economic growth. It is therefore important to explore new ways to better organize commodity exchanges in order to improve the market access of small farmers and safeguard their income from price fluctuations.

The last section of this book, *Assembling the Sub-Saharan Africa's Jigsaw*, attempted to bring together the various threads and challenges that were covered in the research presented here. The main question is whether SSA will be able to undergo a rapid demographic transformation, similar to the one that has occurred in the countries of East Asia. These countries have often experienced significant fertility transitions in 30 years or less. For instance, Thailand achieved a decline of 3.7 children per woman between 1965-1970 and 1985-1990, a decrease of almost two children per decade.

On this count, however, the analysis presented in this volume points to rather mixed prospects. To be sure, the modeling of the demographic dividend indicates clearly the policy levers that could be used to open a demographic window of opportunity, which in turn could lead to capturing a first demographic dividend. Governments, the private sector, and the international community should rekindle their efforts; their respective roles and contributions will be crucial as well. In particular, governments will need to demonstrate a much stronger commitment to tackle the high fertility levels.

Unfortunately, all these policies cannot be implemented everywhere in the continent, because several sub-regions of SSA are plagued by protracted conflicts and civil strife. Moreover, politicians always have a difficult time to envisage demographic processes that take much longer than the 4- to 5-year election-cycle of most countries.

As the conclusion of this book, several questions come to mind:

- The future of Africa starts with the management of its fertility. In this respect, what should be done, what could be achieved, and in which time frame?
- What are the main lessons learned from other parts of the world, in particular from Asia and some Muslim countries like Bangladesh, the Islamic Republic of Iran or Indonesia? For example, in one decade only, between 1985-1990 and 1995-2000, Iran achieved a decline of 3 children per woman. This demonstrates that rapid change is possible.
- Last but not least, what actionable recommendations could be put forward for sub-Saharan African policymakers and leaders? Here, the experience of some countries that have achieved rapid fertility transitions should come to bear, albeit some of these countries, like Iran, are now facing the challenge to create enough jobs for their youth.

Again, the key driver of the future demographic outcomes in SSA will be the pace of fertility decline in the coming 2 or 3 decades. On this front, with the exception of some countries (Ethiopia, Ghana,

Kenya, Malawi, Rwanda, South Africa, etc.), it must be stressed that during the past 40 years very few SSA countries have implemented strong and efficient programs to accelerate their fertility transitions. African policymakers and leaders will need to be much more proactive on this front. Today, all emerging market economies are to be found in countries where the total fertility rate is lower than 3 children per woman. According to the UN Population Division, SSA will not reach the critical threshold of 3 children per woman until 2055 (Medium Variant of the 2015 population projections), whereas the number of youth will grow exponentially in the meantime.

In fact, there will be no capturing of a first demographic dividend unless fertility rates decline rapidly and sharply in the SSA region. To reach this stage, SSA countries will need to improve and speed up women's health prospects and usher the contraceptive revolution. This has been achieved in all emerging market economies, including several large Muslim countries (Bangladesh, Indonesia, and the Islamic Republic of Iran), often over a time period of 3 decades or even less.

This decline in fertility rates will in turn facilitate the formation of human capital, namely education and health, which is another necessary prerequisite to capture a first demographic dividend. One should remember that the African young generation needs three things: a good health, a solid education, and last but not least a well-paying job as well as investments in jobs and supporting infrastructure. If the rapid and unprecedented demographic growth of SSA is a powder keg, the detonator might well turn out to be the unavailability of new jobs.

At this juncture, it has become clear that no single policy by itself will bring the needed changes. The analysis collected in this volume illustrates the diversity and complexity of the various situations as well as the interdependencies of the numerous drivers. This volume also highlights the need to design holistic and comprehensive policies. As such, the supply of family planning services alone will make no major difference, unless fertility norms are also modified. Efforts focused only at education will make no major difference either, as the growing number of school children may soon just overwhelm the education sector. Similarly, improving health or reducing all sorts of mortality conditions in isolation is no promising development recipe by itself. Finally, hopes for economic growth *per se* to "solve" the population issues at hand are woefully misplaced, especially as population and social policies will be needed also to achieve poverty reduction and shared prosperity as well as to reduce inequality.

Again, what is needed at this stage of Africa's population dynamics is a comprehensive development strategy, a strategy that would be truly demography-informed. Such a strategy has to take into account economic development, health, social, and cultural dimensions, as well as the political and good governance issues. This new strategy would help implement *concomitantly* several multisector interventions.

The goal of this volume is to help craft a bold vision and time schedule for the future of sub-Saharan Africa in the 21<sup>st</sup> century. In particular, the book is a call for African policymakers and their partners to take urgently the necessary actions that will determine not only the socioeconomic future of their own region, but also the future of the world at large.

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