Soest, C. V. (2008) Wacklige „Bausteine "und schwache „Maurer ": Die Afrikanische Union hat ein Integrationsproblem GIGA Focus Africa 4/2008. Hamburg: German Institute of Global and Area Studies.
Svendsen, M. et al. (2009) Measuring Irrigation Performance in Africa. IFPRI Discussion Paper. Washington, DC: International Food Policy Research Institute.
UCDP (Uppsala Conflict Data Programme) and PRIO (International Peace Research Institute) (2009) UCDP/PRIO Armed Conflict Dataset v.4-2009,1946–2008. Online: http://www.pcr.uu.se/publications/UCDP_pub/UCDP_PRIO_Armed%20Conflict%20Dataset%20Version%204_2009.xls (accessed 17 December 2009).
UN (United Nations) (2009) *The Millennium Development Goals Report 2009*. New York/Geneva: United Nations.
UNCCD (United Nations Convention to Combat Desertification) (2009) Combating Desertification. Fact Sheet 11. Bonn: United Nations.
UNCTAD (United Nations Conference on Trade and Development) (2009) *Economic Development in Africa 2009: Strengthening Regional Economic Integration for Africa's Development*. New York/Geneva: United Nations.
—— (2008) *Economic Development in Africa 2008*. New York/Geneva: United Nations.
UNDP (United Nations Development Programme) (2009) *Human Development Report 2009: Statistical Tables*. Online: http://hdr.undp.org/en/statistics/data/ (accessed 13 November 2009).
UNEP (United Nations Environment Programme) (2006) *Africa Environment Outlook 2*. Nairobi: United Nations.
—— (2008) *Africa: Atlas of Our Changing Environment*. Nairobi: United Nations.
Wezeman, P.D. (2009) Arms Transfers to Central, North and West Africa. SIPRI Background Paper April 2009. Stockholm: SIPRI.
World Bank (2007) *World Development Report 2008: Agriculture for Development*. Washington, DC: The World Bank.
World Bank (2009a) *African Development Indicators 2008–09*. Washington DC: World Bank.
—— (2009b) *African Development Indicators 2008–09* (CD-ROM). Washington DC: World Bank.
—— (2009c). *World Development Indicators 2009*. Washington DC: World Bank.
—— (2009d) *World Development Indicators*. OnlineQuery: http://go.worldbank.org/1SF48T40L0 (accessed 9 November 2009).
—— (2008) *World Development Indicators 2008* (CD-ROM), Washington DC: World Bank.
—— (2005) *World Development Report 2006: Equity and Development*. Washington DC: World Bank.
WTO (World Trade Organization) (2009) *International Trade Statistics 2009*. Geneva: World Trade Organization.
Zimmermann, R. et al. (2009) Agricultural Policies in Sub-Saharan Africa: Understanding CAADP and APRM Policy Processes. *DIE Studies* 48. Bonn: Deutsches Institut für Entwicklungspolitik.

4

Population Change and Sustainable Development in Africa

Patrice Vimard and Raïmi Fassassi

To meet the priority of accelerating socio-economic development while preserving the environment for future generations, there is a need to identify development constraints that Africa has faced until today and the means of contributing to the continent's future development. The population issue is an overriding factor in addressing these questions. This chapter examines the relationships between demographic dynamics, economic growth and social development in Africa and especially the possible linkages between Africa's lagging demographic transition and its slow socio-economic progress. In order to background explorations of the continent's future, the chapter first provides a broad-brush view of current demographic trends in Africa by showing the continent's specificity in global comparison and highlighting the main differentiations among African countries. After placing discussions on population and development policies in the African context, the relationships between demographic growth and development in Africa are analysed by examining the specific case of North Africa and the impact of human capital improvement upon demographic changes. This treatment of the current state of the population–development relationship in Africa enables us to present the different domains where uncertainties prevail and draw up possible medium-term trajectories concerning demographic change and development. The conclusion emphasises the regional dimensions of demo-economic relationships.

4.1 Demographic Dynamics, Development and Population Policy

4.1.1 Overview of Current Demographic Dynamics

Sub-Saharan Africa has the world's least advanced demographic transition.[1] The annual population growth rate in Africa was 2.6 per cent from 1975 to 2009, higher than for other developing regions (Table 4.1). This high population growth stems from a still high birth rate linked to a high fertility rate and from a declining mortality rate, even though there is still a high

mortality rate. All of Africa's demographic indicators stand apart from those of other developing regions. Table 4.1 shows the gap between indicators for Africa and developing countries overall. The level differences in indicators are noteworthy between Africa and other regions of the world with the most lagging demographic transition after Africa. The gap in terms of population dynamics between Africa and any other developing region is profound. Africa's population remains marked by the characteristics of a population before the transition: high fertility and high mortality. In contrast, all other developing regions are near the end of their demographic transition with fertility close to replacement level and a life expectancy approaching 70 years.

Africa's demographic dynamics are characterised by a young population, whose median age is 19 years, where 40 per cent are younger than 15 and 60 per cent younger than 25. Given that the population at reproductive age will continue to represent a large share of the population and the inertia of demographic phenomena, population growth will stay high and a young population pyramid will prevail through a large part of this century. According to the United Nations medium-fertility variant population projections, 44 per cent of the population will be under 25 by 2050. Africa's population is projected to double, reaching 2 billion people and accounting for 22 per cent of the world's population by 2050 compared to 15 per cent currently (United Nations 2009).[2]

Table 4.1 Population Growth Indicators in Africa and in Developing Countries

Indicators	Africa	Developing countries	Region with the most lagging demographic transition after Africa
Population growth rate (%), 1975–2009	2.59	1.82	1.73 (Asia)
Birth rate (per 1000 population), 2000–2005	38	24	22 (Latin America and Caribbean)
Mortality rate (per 1000 population), 2000–2005	15	9	8 (Asia)
Mean number of children ever born per woman/Total Fertility Rate, 2005–2010	4.61	2.73	2.44 (Oceania)
Life expectancy at birth (in years), 2005–2010	54.1	65.6	68.9 (Asia)
Median Age (in years), 2009	19.1	25.7	26.4 (Latin America and Caribbean)

Source: United Nations (2005a, 2009).

High population growth together with low economic growth contributes to a negative migration balance in Africa. According to United Nations estimates (2009), Africa's annual net loss of migrants has risen over time from 137,000 in the 1950s to 521,000 between 2000 and 2010. This annual negative balance should remain over 400,000 migrants until 2050. These figures are significant in absolute terms but account for only a small share of the natural population increase in Africa. These emigration flows contribute to an estimated stock of some 6.9 million African migrants in Organisation for Economic Co-operation and Development (OECD) countries, which underestimates the number of emigrants outside of the continent due to migration flows to non-OECD countries and the absence of statistics on illegal migrants.[3] In addition to international migration, internal migration within the continent is significant. According to the United Nations, there were 16.3 million international migrants and 6 million refugees within Africa in 2000, representing some 2.8 per cent of the continent's population.[4]

Africa's population remains predominantly rural (61 per cent in 2007). Although the share of the rural population is in decline and will decline further, Africa is the only continent where rural population is expected to increase until 2050 – from 592 million in 2007 to 736 million in 2025, and 764 million in 2050 (United Nations 2008). Likewise, Africa accounts for 18 per cent of global rural population today and could account for 27 per cent of the world's rural population in 2050. Africa should therefore partly hold the future of global agriculture and food production in its hands.

The corollary of a predominant rural population in Africa is that it is the world's least urbanised continent and will remain so in the future. Since the 1950s Africa's urban population has increased rapidly (the world's fastest urban growth) and will continue to grow. This growth results from natural increases and net migration, the respective contribution depending on the country. Accounting for 39 per cent of the continent's total population in 2007, urban population should represent 47 per cent in 2025 and 62 per cent in 2050. Urban population should nearly double by 2025 and more than triple by 2050 (United Nations 2008).[5]

Given high population growth, the economically active population should double by 2030 and exert high pressure on labour markets, particularly in urban areas. Since current low labour demand does not allow integration of new entrants to the labour market, many countries need labour demand to increase to meet the growth of labour supply both in rural and urban areas (ILO 2003).

This general overview of the demographic dynamics in Africa conceals marked regional disparities. While regions had relatively homogeneous demographic patterns in the mid-twentieth century, they have been subject to growing differences since the 1960s and especially since the 1980s when social policies implemented in North African countries started to have an impact upon population issues. Table A.4.1 displays the main disparities in

basic indicators between the African regions. The main contrast concerns North Africa and sub-Saharan Africa. North Africa has started its last stage of demographic transition whereas sub-Saharan Africa is still in the middle of its transition.[6] Noteworthy gaps concern fertility with a difference of two children per woman, a 20-year higher life expectancy and an under-five mortality rate that is three times lower in North Africa. North Africa has had a lower population growth rate since the 1980s. This gap is expected to persist until the middle of the twenty-first century (see Figure A4.1). In addition, the population is clearly younger in sub-Saharan Africa and less urbanised. Labour force participation rates in sub-Saharan Africa are higher mostly due to the high proportion of economically active women (ILO 2003).

Sub-Saharan Africa is not homogeneous either even though the differences within this region are less pronounced than its overall differences with North Africa. In sub-Saharan Africa, Southern Africa differs with a clearly lower annual population growth of 0.7 per cent compared to 2.2–2.6 per cent for the other sub-regions. This results from relatively low fertility while mortality remains high, as high as in the other sub-regions (with a life expectancy close to 46 years). Southern Africa has almost achieved its fertility transition[7] while mortality has increased due to high HIV/AIDS prevalence, which has undermined gains won during a period of marked mortality decline. Southern Africa also differs by a low under-five mortality rate and by a pronounced urbanisation (57.3 per cent of total population). The other sub-regions south of the Sahara are more homogeneous although fertility and mortality are lower in East Africa, suggesting an advanced demographic transition. Labour force participation rates differ as East Africa has the highest activity rate and Southern Africa the lowest. Female activity is again a key factor accounting for such differences. Whereas male labour force participation rates range from 82 to 88 per cent in the sub-regions, female rates vary greatly from 50 per cent for Southern Africa to 72 per cent in East Africa (ILO 2003).

4.1.2 Demography: A Constraint on Development

Successive econometric studies have shown that there is no strong statistical relationship between demographic and economic growth (Easterlin 1967; Kuznets 1967; Blanchet 1991). In a recent study, however, Ndulu (2006) demonstrates that there is a –1.12 per cent gap between the annual gross domestic product (GDP) per capita growth in sub-Saharan Africa and other developing regions during the period 1960–2004, for which –0.86 per cent is explained by demographic factors. In sub-Saharan Africa, population growth has slowed down the rate of economic growth due to the increase of dependency rates since the 1960s until the early 1990s, leading to a lower income growth per capita than per active worker.[8] The evolution of the dependency rate thus provides a major link between population and economic growth and the decline in the dependency ratio is the main channel

through which the slackening of population growth results in economic growth.

Conversely, fertility decline in other developing countries entailed a rapid drop in the dependency rate from the 1970s onward. Over the period 1960–2000, this impact has been estimated at a 0.4 per cent drop of annual growth per capita in sub-Saharan Africa (Ndulu and O'Connell 2006). In addition to this mechanical effect, high and stable dependency rates tend to discourage investments in human capital formation (Bloom and Sachs 1998). Various studies have underscored that population growth has a negative direct and indirect impact at a micro-economical level in many areas such as child and household well-being, health, human capital formation, and employment and development of economic opportunities for women and youth (United Nations 1993; Cassen 1994).

Two additional population issues must also be examined here: low density and poor health outcomes. In 1900, sub-Saharan Africa had a very low density and unequally distributed population, having experienced little change in the four centuries between 1500 and 1900. High densities were found in a few isolated regions such as the Ethiopian highlands, the Great Lakes region or the West African forest zone. From the 1920s onward, the development of colonial administrations and communication links as well as the introduction of Western medicine contributed to higher population growth (Herbst 2000; Iliffe 1995). However, the overall density in 1950 remained low, and the population estimate was low at about 168 million. This situation did not enhance the creation of structured and efficient states. Today at the end of a period of population growth remaining at the annual rate of 2.5 per cent or above since 1960 (United Nations 2007), sub-Saharan Africa's population exceeds 700 million and its population densities may promote a better dissemination of technology, a growth of production, trade and land administration. Although the idea that sub-Saharan Africa is underpopulated now appears irrelevant (Guengant 2007), the region continues to be less densely populated than other continents.

Two issues show how complex this phenomenon is across Africa. First, national variations must be underscored – from less than 10 inhabitants per square kilometre (Central African Republic, Gabon, Libya, Mauritania, Western Sahara, Chad) to over 250 inhabitants per square kilometre (Burundi, Comoros, Rwanda). Second, high natural growth in rural areas has led to an over-densification in some regions. High rural densities of 300 inhabitants per square kilometre can be found in coastal areas of Benin and Togo or across the hills of Burundi and Rwanda. Computing densities in sub-Saharan Africa by surface of arable lands rather than by a country's total land area presents a situation of over-population relative to truly usable land (Tabutin and Schoumaker 2004). In terms of adjusted densities, only one country (Botswana) has a population density below 100 inhabitants per square kilometre while most number over 300 inhabitants per square

kilometre and nine have a density over 600.[9] Thus, the low overall densities conceal an over-densification of some areas while others, such as deserts and arid or mountainous regions, are less densely populated.

In North Africa, public health has improved considerably as the almost 70-year life expectancy attests, even though there are still parts of the population lagging behind on most measures of health progress. The decrease of mortality followed the improvement of living conditions and the regression of infectious diseases, in particular those affecting children. Conversely, sub-Saharan Africa is the region with the world's highest level of mortality. The sub-continent lags behind most global health achievements, particularly regarding infectious diseases and malaria control, and remains the region most affected by the HIV/AIDS pandemic (Mesle and Vallin 1997; United Nations 2006). Thus 60 per cent of people living with HIV/AIDS live in sub-Saharan Africa. Likewise, sub-Saharan Africa accounts for 90 per cent of the estimated 250 million annual cases of malaria and the 880,000 malaria-related deaths, mainly of children (World Health Organisation 2008). Among the 20 countries with the highest maternal mortality rate, 19 are in sub-Saharan Africa, and the region also has the highest neonatal mortality rate. Although these scourges are particularly worrisome, it is important to note the recent achievements of Africa's health care systems with the support of international development agencies. Onchocercosis, guinea worm and leprosy have almost been eradicated, and there has been important progress in controlling preventable childhood diseases in many African countries due to intensive immunisation policies. Thus poliomyelitis has almost been eradicated and a 50 per cent fall in measles-related deaths has occurred since 1999 (WHO 2006).

HIV/AIDS plays a leading role in the health crisis hitting some sub-Saharan African countries, particularly in Southern Africa. Of the world's 62 countries most affected by the epidemic, 40 are in sub-Saharan Africa. HIV/AIDS has a massive impact on morbidity, mortality and population loss. Life expectancy at birth in the worst-hit countries has dropped, undermining the gains won since the 1950s and 1960s. Thus, in Botswana, life expectancy at birth has fallen from 64 years in 1985–1990 to 47 years in 2000–2005. Likewise, South Africa's life expectancy at birth has also dropped from 61 years in 1990–1995 to 52 years in 2005–2010. HIV/AIDS has also delayed or even erased progress in under-five mortality. In Zimbabwe, a pioneering country in child health, infant mortality has increased from 53 deaths per 1000 live births in 1990–1995 to 69 in 2000–2005 (United Nations 2009).

Beyond demographic effects, it is difficult to precisely assess the impacts of the HIV/AIDS epidemic, particularly regarding family breakdown, increased demand of health services, and decline in demand for labour. The complexity of interactions between demographic behaviours and the income-generating process has been demonstrated in a study assessing the impact of AIDS on household and individual incomes in Côte d'Ivoire (Cogneau and Grimm 2002). The authors show that in the absence of other macroeconomics effects, the HIV/AIDS epidemic is likely to reduce the size of the economy by 6 per cent over 15 years, leaving average income per capita, income inequalities and poverty mostly unchanged.

Admittedly, other phenomena have played a role in the health crisis: emergent and re-emergent infectious diseases, economic and food crises, increased poverty and inequality, civil conflicts or wars between countries, state disorganisation, increased household health care costs and low efficiency in healthcare systems. These factors often interact, though the relationships between them are still poorly understood. Although the health transition in Africa overall started during the twentieth century, the process was interrupted between the 1980s and the early 2000s. A reversal of this transition is occurring more or less permanently for HIV/AIDS-affected countries. As this pandemic seems contained due to prevention programmes and tritherapies, health progress has resumed its positive course in sub-Saharan Africa. Progress has been made again in life expectancy at birth and child survival in some countries (United Nations 2007).

In sum, with a very young and rapidly increasing population, high rates of dependence and an often unfavourable health situation, sub-Saharan Africa faces major constraints on economic growth and social progress. These constraints exert pressure for the efficient integration of demographic policies in development strategies. More advanced in the demographic transition, the populations of North Africa benefit from lower dependency rates and better health, which are assets for development policy success.

4.1.3 International Population Policies: Debate over Priorities

Agreement on population policies has grown since the 1974 Bucharest World Population Conference (Sala-Diakanda 2000). This trend is revealed by the way African governments handle population policies. Several UN reports have shown that the percentage of African countries seeking a reduction of fertility in their country increased from 26 per cent in 1976 to 75 per cent in 2005. Thus, while 48 per cent of governments directly supported family planning activities in 1976, some 86 per cent did so in 2005, with an additional 10 per cent of governments indirectly supporting this policy even though there is a gap between viewpoints and proclaimed policies, and implemented policy measures (Anoh 2009).

Until the 1994 Cairo Conference, family planning was the main focus of population policies. These programmes often had the explicit goal of protecting child and maternal health and to a lesser extent the implicit goal of reducing population growth. These programmes have been gradually implemented by African governments as they supported fertility decline. North African countries and a few Anglophone sub-Saharan countries (Gambia, Ghana, Kenya, Nigeria, and Zimbabwe) were the first countries to embark on this path in the 1960s.

The Cairo Conference represented a shift away from the prevalent neo-Malthusian paradigm towards a perspective affirming a new vision of gender rights. To enable women to exercise their right to decide freely and responsibly all matters of reproduction and sexuality, there was a need to strengthen their capacity for action and negotiation, and implement policies aimed at women's autonomy and empowerment. The principles of the Cairo programme of action advocating 'sexual and reproductive health for all' have been widely accepted by African countries but their incorporation in action programmes has been slow. More than ten years after Cairo, access to contraception and other reproductive health services and to real reproductive rights is still poor for many African populations (Gautier 2006). Implementation of the Cairo programme was hampered by the difficulty in integrating reproductive health services into health systems already facing funding and performance deficits and its limited focus on key priorities such as family planning and maternal and child health (Guengant 2007).

Future progress remains uncertain insofar as the Millennium Development Goals (MDGs) constitute a new development paradigm superseding the programmes targeting women's reproductive rights set at the Cairo and Beijing (1995) conferences. The MDGs have given priority to the fight against poverty in the development policies supported by developed countries. Among the eight MDGs focusing on poverty alleviation by 2015, several of them address Africa's health challenges. In addition, the goals aimed at reducing extreme poverty and hunger, achieving universal primary education and providing gender equality and women's empowerment, as well as the goal on sustainable environment define an agenda to improve the living conditions of African populations.

However, as Guengant and Rafalimanana (2005) have noted, there is a contradiction concerning the poorest countries, particularly in sub-Saharan Africa. Although the MDGs, such as they were adopted in 2000, do not specifically address family planning issues, several of the goals – on education, women's empowerment, infant and maternal mortality – are jeopardised by high population growth and the number of unwanted pregnancies. Therefore, is there not a need to implement most of the Cairo's action programme on birth control and fertility decline to achieve or almost approach the MDGs in sub-Saharan Africa? Conversely, how can the Cairo action programme be implemented in sub-Saharan Africa if most of the resources for development are used to achieve MDGs? Following debates about these issues, in 2008 the fifth objective to 'improve maternal health' was supplemented with an objective 5b to 'reach, from 2015, universal access to reproductive health'.

But nearly one decade was lost on the way and currently most African governments lack resources to implement the population policies they have adopted. International support to implement population policies is weak and has been falling since 1995. The United Nations Population Fund (UNFPA) considers that international assistance for family planning and reproductive health accounts for respectively 5 and 17 per cent of the financial support dedicated for population programmes in 2007 compared with 75 per cent for the fight against HIV/AIDS (UNFPA 2009). The June 2008 MDG Africa Steering Committee assessed that overall public financing should rise to $1 billion dollars per year by 2010 to support access to family planning compared with $10 billion per year to implement efficient health systems and $12 billion per year for HIV/AIDS prevention and treatment – equivalent to more than financial support for family planning and health systems altogether (MDG Africa Steering Group 2008).

Providing HIV/AIDS programmes with the largest share of financial resources has been considered a major mistake in some quarters. For example, Cleland and Sinding (2005) consider that the HIV/AIDS epidemic is not the main threat for development and that high fertility is a more serious hindrance to poverty alleviation in many African countries. Population growth threatens food security, increases dependency on foreign aid, and raises pressure for international migration.

In the last decade, UN institutions did not acknowledge the threat to all the MDGs posed by rapid population growth and sustained high fertility rates in sub-Saharan Africa.[10] Population growth reduction is not identified as a goal in the United Nations MDG plan (United Nations 2005b) or in the recommendations of the MDG Africa Steering Group (MDG Africa Steering Group 2008), even though these reports give priority to better access to reproductive services, including family planning. In contrast, the World Bank and the UNFPA, to a lesser extent, have acknowledged that donors and development agencies have neglected the impacts of high fertility on development (World Bank 2007), and they were instrumental in increasing the attention paid to making access to reproductive health and family planning universal in the MDGs.

4.2 Population and Development in Africa Today

4.2.1 An Exploratory Analysis of the Population–Development Relationship

International development policies on poverty reduction in African countries have set new guidelines with priority given to HIV/AIDS programmes even though countries are experiencing diverse population trends. Falling fertility accompanies reductions in mortality in some countries while in others, the decline in mortality rates – practically universal throughout the continent since the1950s – is not being followed by fertility declines, entailing rapid population growth. Likewise, economic and social upheavals spread at uneven intensity depending on the country. For several of Africa's most vulnerable countries, the deterioration in the world's economic situation in the 1970s and early 1980s marked the beginning of increased economic crisis

and widespread poverty. There has been little change in the per capita GDP of many sub-Saharan African countries since the 1960s. Although the average per capita income was two times higher in sub-Saharan Africa than in East Asia about 30 years ago, today it amounts to less than half with $2180 compared to $4937 in purchasing power parity (World Bank 2009).

In this continent-wide exploratory analysis of relationships between population and development at the national level, African countries are classified according to their main characteristics in terms of population, development, and epidemiological environment. This categorisation allows us to draw broad outlines of the countries' economic and social future for the coming decades. There are several causal relationships between economic and social variables, environmental and health contexts, and demographic variables. Most approaches agree that there are close linkages between these different factors even though the direction of causal relationships is a matter of debate. This study explores the convergences and divergences between economic and demographic dynamics in African countries by including various medium-term country characteristics. Study variables are mostly structural and account for the main trends in demography.

On the one hand, African countries have often been classified according to geographical division. UN reports categorise the continent's countries on this basis. Relevant when considering neighbourhood effects, these regional groupings may sometimes conceal significant inter-state differences. On the other hand, the World Bank's grouping of African states by income level provides a classification that reflects few demographic and socio-cultural features. African economies are extroverted and dependent on raw materials and vulnerable to volatilities in the global economy. In the space of a few years, a middle-income country may become a heavily indebted country, as the case of Côte d'Ivoire has recently illustrated. Similarly, a low-income country may join the category of middle-income countries due to significant discoveries and exploitation of natural resources. However, the lack of any changes to structures related to the economy and demographic foundations makes them unready for such a change. The case of Equatorial Guinea is illustrative in this regard.

The section below reports the outcome of a principal components analysis (PCA) conducted by the authors used to group countries according to their demographic and economic situation. This automatic mathematical procedure allows us to classify countries based on the proximities of data values. PCA was supplemented with research on the countries' cultural and geographical characteristics – important dimensions for demographic choices.

We selected a set of 114 demographic, socio-economic, and health variables accounting for fertility, mortality, migration, education, health, economic activity and production over a period of time.[11] Gender inequality is acknowledged by examining some variables by sex.

The most significant features of African demography related to the economy and social development are situated in the first factorial plane, which summarises nearly half of the information included in the variables (see Figure A4.2). Three categories of variables are highlighted. The first dimension of the first factorial plane separates economic and social development variables – suggested by a higher life expectancy at birth, significant fertility decline between 1990 and 2007, improved access to water and sanitation, and more family planning – from those that suggest lagging sustainable development such as high maternal mortality, illiteracy, high population growth and fertility, and a high proportion of rural population.

The second axis of this first factorial plane underscores how much education, particularly education for females, differentiates countries. Educating women and improving their social and economic status is one of the main drivers to improve living conditions for impoverished populations. However, important challenges remain in Africa. Although females enjoy a relatively high level of education in North Africa, their social and legal status is still low, even in urban areas where female school enrolment is the highest. In West Africa, particularly in the Sahel, high female illiteracy is combined with a belittled social status.

The countries with the highest values for the variables included in the PCA are placed in the first factorial plane, standing out from one another like the studied variables. Using the first axis as a classification criterion to indicate progress from right to left towards sustainable development, we distinguished four broad country categories.

(a) The first category includes North African countries as well as Mauritius and South Africa. These countries are the most advanced in the demographic transition as well as in economic terms. Fertility rates remain low and the lowest levels of infant mortality within Africa prevail. These countries' cultures also stand out from those of sub-Saharan Africa.
(b) At the other extreme, we find the countries with high fertility and Africa's lowest levels of economic and social development. These are landlocked and drought-hit countries, like the Sahelian countries, or those hit hard by longstanding civil wars (Angola, Somalia) or recurring wars (Chad). These countries continue to lag far behind in education for females and maternal and infant mortality and are the most affected by rapid population growth and severe poverty.
(c) A third group includes countries advancing significantly along the demographic transition. This heterogeneous group includes most of Southern Africa's countries, some island states (Seychelles, Sao Tome and Principe, Comoros, Cape Verde), some oil-producing countries in Central Africa that have lower fertility because they were previously affected by sterility (Congo, Gabon), and Ghana and Zimbabwe due to early implementation of health and population policies. These are generally coastal

countries or have relatively important natural resources and they are generally experiencing ongoing demographic and economic progress.

(d) The last group includes the largest number of countries, which are characterised by slow progress. This group includes countries that have faced or are facing severe internal or external conflicts, such as the Central African Republic, Eritrea, Ethiopia, Guinea, Mozambique, and Uganda. This group also includes more advanced countries regarding sustainable development that have benefited from relative political stability such as Benin, Côte d'Ivoire, Senegal, Tanzania, and Kenya. However, these are all poor and heavily indebted countries, with low economic performance and in need of substantial progress in reducing maternal and infant mortality and fertility.

Although this PCA classification highlights the broad outlines of demographic and economic interrelationships on the continent, the introduction of geographical and cultural proximities prompts us to refine this grouping and distinguish five groups of countries (see a representation of the five groups in Figure 4.1).

- The first group includes North African countries, which must be studied together because of their geographical and cultural proximity and close demographic and economic profile (see Section 4.2.2).
- The second group is composed of small island states that are at different stages of demographic transition and do not share dominant characteristics

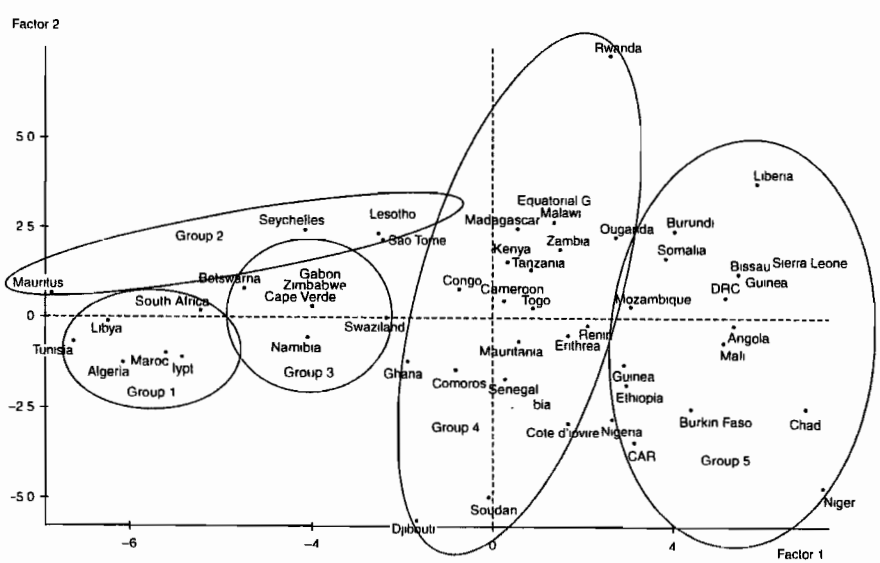

Figure 4.1 Representation of Countries in the First Factorial Plane

with the continent's other countries. Including them in the same group results from their economic and demographic proximities. They are destined for a similar economic and demographic future, even though they are situated at different levels of development that could persist.

- The third group is made up of Southern African countries, very advanced along the demographic transition and particularly affected by HIV/AIDS. Most Southern African countries are noteworthy for their substantial progress in health care and family planning until the 1990s. However, this progress was followed by setbacks due to high HIV/AIDS prevalence that is undermining most of the previously won gains (UNAIDS 2008). HIV/AIDS control is the key to this region's future.
- The fourth group is formed by all the African countries whose demographic transition seems irreversible, although mortality and fertility declines may be limited and likely to experience stabilisation stages. These countries may face economic difficulties often related to political conflicts but benefit from real assets, such as ocean access and relatively abundant resources. This group mainly includes two geographical areas: (a) most East African countries, often more advanced along the demographic transition and in human development and (b) most West and Central African coastal countries.
- The fifth group includes the African countries with the most lagging demographic transition and the lowest economic and human development. This group includes landlocked countries located in the Sahel area, to which the Central African Republic can be added, as well as countries hit by longstanding crises such as Angola, Burundi, Guinea-Bissau, Liberia, The Democratic Republic of the Congo, Sierra Leone, and Somalia.[12]

4.2.2 The Specificity of the Maghreb in the Population–Development Relationship

The Maghreb forms a relatively homogeneous area on a geographical, social, and cultural level as well as in terms of relationships between population and development.[13] Apart from Libya, overall population growth is controlled there. This control is based on a significant fertility decline since the 1960s.[14] Population growth remains relatively high considering the fertility rate because reproductive age groups represent a high percentage of the total population. This demographic structure should abate in the coming years and fertility decline should entail a decrease of reproductive groups with a generation interval. Thus, the population growth rate should be less than 1 per cent in 2025–2030 and at 0.5 per cent in 2045–2050 in the four countries (Table 4.2).

The history of the relationships between population and development in the Maghreb provides lessons for Africa's future overall. The first lesson is that the country that has advanced the most rapidly along the demographic

Table 4.2 Population Growth Rate in Maghreb Countries by Period (in %)

	2005–2010	2025–2030	2045–2050
Algeria	1.51	0.84	0.36
Libya	2.00	0.90	0.55
Morocco	1.20	0.72	0.25
Tunisia	0.98	0.55	0.09

Source: United Nations (2009). Estimation follows the medium variant of United Nations' prospects.

transition did so due to a policy not only based on nation-wide family planning, but also supporting women's legal, social, and economic rights. As early as the 1960s, Tunisia developed a global population policy including measures to strengthen women's status within the family and society, to promote literacy and encourage small-sized families (Gastineau and Sandron 2004; Brown 2007). By promoting female education, women's participation in wage employment, and raising the legal age for marriage, this policy resulted in an increase in age at first marriage. The delay in marriage was the initial and decisive factor for fertility decline and control of population growth. It has also generated a willingness in the population to reduce the number of births, making adherence to modern contraception easier.

More than fifty years after its implementation in Tunisia, the political will to support women's rights is still absent in Algeria and has only been sketched out in February 2004 in Morocco with the personal status code – the *Moudawana*. Despite this gap in family rights, Algeria and Morocco have undertaken to reduce population growth by promoting family planning services and through changes in perceptions and values linked to progress in female education and the influence of family immigration in Europe, social change has preceded legal change in this context (Courbage 2002; Yaakoubd and Vimard 2009).

Triggered by a fully transparent social policy, Tunisia's decline in population growth facilitated true progress in human development. Successes are apparent and most of Tunisia's indicators are better compared to Algeria and Morocco. Only Libya can boast similar results, but it has considerable oil income, enabling its population to attain the continent's highest standard of living. There is generally more widespread access to social facilities, higher levels of population health and less prevalent undernutrition in Tunisia. On the whole, the 2006 human development index (HDI) is higher in Tunisia than in Algeria or Morocco; Libya has a high HDI at 0.840 (UNDP 2008).

Whatever the relative differences between the Maghreb countries, they have all made significant progress in economic and social development and the gap with sub-Saharan countries is very noticeable and have considerable assets to further improve their situation. Firstly, they have satisfying health situations, having eradicated malaria and tuberculosis and contained

the emergence of HIV/AIDS. The health of the population is relatively satisfactory, as shown by the infant mortality rate that has clearly decreased. For the most part, undernutrition has disappeared even if malnutrition and lack of micronutrients continues to be a public health problem and impedes economic development (Gillespie et al. 1996). Secondly, population growth, which has already slowed considerably, continues to fall. In 2030, the four Maghreb countries should have a population growth below 1 per cent annually, with a total fertility rate equal to or below two children per woman and a life expectancy greater than 75 years – demography that resembles that of developed countries.[15] This gradual reduction in population growth over a few decades has finally brought a decline in the dependency rate with an increase in the working-age population and a decrease in the percentage of young dependents. Meanwhile the slow growth of old-age dependents will only have significant consequences in several decades.

Favourable declines in dependency rates will achieve their full objectives only if a number of prevailing challenges are successfully tackled. The first challenge concerns underemployment, particularly female underemployment, which puts the actual activity rate at a disadvantage. The second challenge relates to low literacy, which affects qualifications among the active population. A third challenge pertains to productivity growth of various economic sectors and especially the agricultural sector.

4.2.3 Expectations for Controlled Demographic Growth and Demographic Bonus

Recent demographic history shows that a new pattern combining low fertility and mortality can appear in Africa. Reserved for the Maghreb's countries up to now, this pattern could characterise some countries located in sub-Saharan Africa in the near future. The countries of Southern Africa, as well as Gabon and Zimbabwe could be the first countries to enter the last phase of the demographic transition. Then, other countries (mainly included in Group 4) whose fertility is about four to five children per woman could follow. These are mainly coastal countries and other sub-Saharan regions (West, East and Central Africa): Cameroon, Central African Republic, Côte d'Ivoire, Gambia, Ghana, Kenya, Tanzania and Senegal. For the sub-Saharan African countries included in Group 5, following this new pattern is still far-off and depends on too many factors to be foreseen with any relevance.

Fertility decline results in a decline in the growth of population size, which can be considered an initial benefit from the demographic transition. However, this changes the population pyramid, with a reduction of the children's percentage and an overrepresentation of young working-age adults. The concerned countries must then shift from a phase where they need to allocate important resources to dependent children that must receive schooling to a phase where they can benefit from an increasing percentage of working-age population and spend less. This change can induce the

accelerated growth of income, due to active population increase, the accelerated accumulation of capital, and less expenditure on dependent groups. This phenomenon is called a 'bonus' or 'demographic dividend'.[16]

East Asia presents the world's most successful experience of demographic bonus, representing about 25 per cent of the growth of per capita real income, reaching 6 per cent annually between 1965 and 1990, when the working-age population grew four times faster than dependent populations (Bloom et al. 2003). The Maghreb countries started to benefit from this change in the age structure for a few years beginning in the 1990s. North Africa has a sharp advantage over sub-Saharan Africa with the working-age population accounting for 64 per cent compared to 54.5 per cent for sub-Saharan Africa in 2010. However, sub-Saharan Africa also seems to be changing, though at a delayed and slower rate. The working-age population is expected to reach 60 per cent by 2030 and 65 per cent by 2050 in sub-Saharan Africa, whereas these levels will have been attained in 2005 and 2020 in North Africa (United Nations 2009).

Although fertility decline and an increase in the working-age population are necessary conditions for economic growth through the redistribution of consumption and recurrent expenditure towards investments for economic growth, these factors are not sufficient. The full effect of the demographic dividend for economic and social progress requires the implementation of efficient policies in key sectors. First, education must be promoted at all levels of the educational system for young people to become a productive labour force. Then there must be investments in the most productive sectors and activities to ensure job opportunities. Lastly, policies must support good governance in order to improve the effectiveness of sectoral policies, the promotion of the rule of law, and reducing corruption (Bloom et al. 2003). Absent efficient policies in these domains, the window of opportunity related to slowing down population growth would remain limited. In this case, the countries would face an increasing number of young people unable to enter the labour market and becoming autonomous in their family and economic life. This situation could result in social upheaval.

4.3 Demographic Changes and the Development Process

If a relationship exists between demographic growth, economic growth, and development, this relationship is not direct; likewise the link between demography and sustainable development is neither direct nor unambiguous. This link is plural since it inherently depends on societies' capacities to handle the various transformations that affect them, and these relationships need to be contextualised since population pressure can either hinder or facilitate economic growth.[17] Similarly, the slowdown of population growth can be an accelerating factor in economic growth or neutral for development, depending on the country's capacity to benefit from the

demographic bonus. This complex set of phenomena, based on the diverse links between demography and economics in societies, is apparent in Africa and is explained by many studies, notably Ferry (2007).

However, most of the continent's trends share common general relationships. The components of demographic change which determine population growth and change in age structures also have an impact on economic growth and social progress. Likewise, this economic and social growth promotes changes in the natural movements of the population (birthrate and mortality) by accelerating the demographic transition. Moreover, policies aimed at improving individuals' health are in the forefront of national strategies to reduce poverty, improve human development and increase countries' production capacities. Outside of the health domain, other sectors interacting with demographic forces include education (which changes individual reproductive and health behaviours), family law and gender parity (which affects marriage, reproductive behaviour, and women's integration in productive activities), urban and rural development (which influences mobility between cities and rural areas) and social protection (which affects individual's demand for children and regulation of the labour market). Overall, policies in these areas contribute to decreasing the number of desired children and increasing the use of modern contraception while developing women's autonomy and participation in economic life (World Bank 2007; Mach 2004).

The various interactions between demographic transition components and those of economic and social development can constitute a series of virtuous circles. The predominant virtuous link that can be tested on trends in African countries concerns the relationship between progress in development and fertility decline as a basis for reducing demographic growth.

4.3.1 Relationships between Economic Growth, Human Development and Fertility Decline

Generally speaking, an inverse relationship exists between per capita income and the total fertility rate (TFR). This relationship is also observed in Africa, although the linear correlation between these two variables is relatively weak. In short, in African countries, high fertility is generally combined with low income. There are several explanations for this.

The desire to have children is generally high. Initially aimed at ensuring social reproduction, high fertility has been at the heart of strategies developed by societies to ensure the survival of many rival ethnic groups throughout the continent that face high mortality. In contexts of poverty where the opportunity costs of raising and providing health care for children are low, the arrival of another child is perceived as a social and economic gain. Children may valorise the status of the mother or have immediate economic value since they can perform economic activities. Children also ensure other functions such as providing future support for their parents in

their old age, a vital role in a context where few individuals are insured or receive public assistance at retirement (Cleland and Wilson 1987; Caldwell 2005). These social considerations are accompanied by the mistaken opinions of political decision makers for whom low density in their countries allows for high population growth. Thus, international efforts to control population growth have sometimes only been met with mixed support even though family planning seems to enjoy full backing in nearly all African countries today.

Even more than per capita income, the HDI shows a very negative correlation with fertility level in Africa (Figure 4.2). For African countries, the HDI is highly correlated with the gross female school-enrollment rate and with modern contraceptive prevalence, two factors that play an important role in fertility decline. Countries in Group 4 stand out the most, with low HDIs and the highest TFRs.

In addition to the strong relationship between these two indicators, HDI dynamics should be compared to fertility dynamics to better assess the relationships between human development and demographic transition in African countries. Generally, correlations are quite weak between the growth rate in HDI and the rate of fertility decline between 1975 and 2005. However, some groups of countries present stronger relationships between these two trends. Countries classified in Group 2, including the continent's small island countries, are changing in line with the expected strong relationship between HDI increases and fertility decline. Likewise, the HDI increase in all four Maghreb countries is very strongly correlated with fertility reduction. The most unstable situations occur in Groups 4 and 5, which include the majority of the study countries. Among these, the

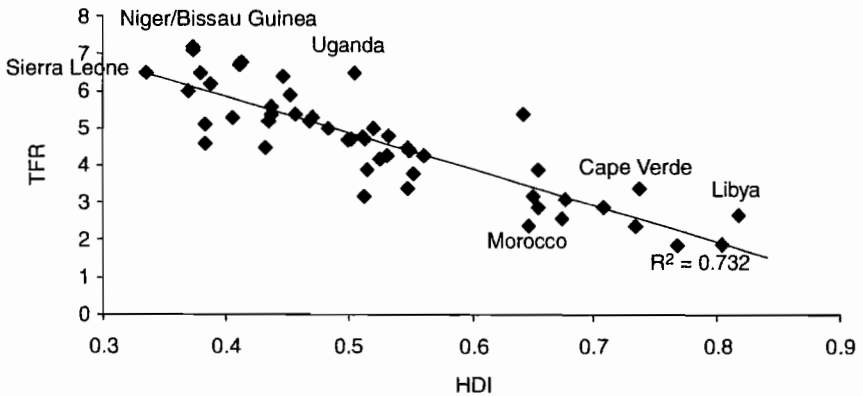

Figure 4.2 Relationship between the TFR (2007) and the HDI (2005) for African Countries

Source: Based on data from the African Development Bank (2008).

countries falling the furthest behind in terms of fertility decline generally also show the least HDI progress (Sierra Leone, Mozambique, etc.). For some of these countries, important progress in the HDI has not fostered fertility decline, probably because the human development level is not sufficient to induce demographic change (cf. Mali). The situation for countries in the third group is more ambiguous, as demonstrated by Zimbabwe where a high fertility decline is observed despite a disastrous socio-economic situation.

4.3.2 Education and Health, the Demographic Transition and Sustainable Development

The interrelationships between population and development in Africa form a complex system, where some links play a dominant role in current changes. First, there is the relationship between economic poverty and natural increase, insofar as poverty influences high mortality and high fertility. The relationship between urbanisation and demographic changes is another component since urban populations are usually the first to adopt pioneering behaviours in marriage, family dynamics, reproduction and child care. However, the systemic comprehension of the 'population–development' relationship shows that education and health play a determining role in how demographic growth and development are controlled, due to their major role in improving human capital. This holds an increasingly important place in the new economy of information and knowledge, where priority is given to skills and capacities (Sen 2000).

The education and health systems of African societies are differentiated both in their organisation and results. Even in light of significant increases in the number of literate and educated individuals and improved health status and mortality rates, the goals of providing education and health care for all and even the MDG mission to cut poverty in half through access to health care and education between 2000 and 2015 still remain utopian ideals for the majority of sub-Saharan African countries (Hugon 2007).

High demographic growth impedes widespread education in sub-Saharan Africa, and a high number of uneducated women marry early, have many children and use the health care system infrequently or inadequately. Conversely, significant efforts in schooling made by some countries in North Africa, East Africa and Southern Africa where demographic growth was initially high has facilitated delay in the marriage age, fertility decline and improved health. Generations that are smaller in number make it easier to achieve progress in education and subsequent access to employment, thus creating a virtuous circle.

Formal education is an effective way to break the vicious circle of intergenerational transmission of poverty because parents' education level is a factor in demand for education and reducing gender disparities for children. The health sector can also promote individuals' efficacy as productive agents in the economy and agents for social and political change. Improved health and

academic success contribute to ameliorating the quality of human resources and foster increasing productivity (Behrman 1996). However, the interrelationships between education, health, demography and development greatly depend on the kind of production system in force. In countries in North Africa and Southern Africa to a lesser extent, the economy was geared early towards the processing of primary products and consumer goods to replace imported products. With the development of an industrialised and urban economy, improved health and education may have significantly contributed to improving productivity in all sectors of activity.

In sub-Saharan Africa, the rentier economy predominates with no surplus, where assets are mobilised for immediate profit with no concern for sustainability. This explains the difficulty in creating mechanisms for sustainable development. In the sub-Saharan system, learning has a positive impact on building national identity and citizenship and obtaining the necessary skills and know-how for many jobs. However, expanding education in the poorest sub-Saharan countries also leads to intellectual unemployment. Over-qualified workers resort to the informal sector, and brain drain towards developed countries ensues once civil servant jobs are taken and paid employment in the private sector is scarce (Hugon 2006).

More in Africa than elsewhere, education and health – at the heart of inequalities between countries – also characterise the inequalities between social groups and individuals (Goesling and Firebaugh 2004; Gwatkin et al. 2007). In African countries, the considerable inequalities between social groups in school attendance and use of health care services, and even the concept and funding of health systems – with priority usually on urban hospitals and schools – lead to greater allocation of public funding and external aid to the most privileged. When considering that in sub-Saharan Africa, a portion of state revenues comes from indirect taxation of exported agricultural products, it becomes apparent that the public sector in health and, to a lesser extent, in education become instruments of redistribution that put the poorest and rural settings at the greatest disadvantage in favour of the richest and urban class (World Bank 1993; Brunet-Jailly 2002).

This inherent inequality within the health care and education systems is both a consequence and driver of the more profound inequalities in obtaining financial, human and social capital. These inequalities seem the most decisive in explaining delays in demographic transition in most sub-Saharan countries. In households and societies that allocate few resources to education and health, working-age individuals are handicapped by low education levels and often weakened by illness, which thwarts socio-economic progress at the individual, family and societal levels. By extension, inequalities in income and capacities at a national level lead to wasted production potential and poor resource allocation (World Bank 2005).

The most complete version of the classic model for demographic transition known as 'equitable development' underlines the decisive role played by equitable structure of economic development and wealth distribution between various levels in the population on mortality and fertility decline. By showing that redistribution of wealth can be a powerful instrument in decreasing the fertility rate, this development model emphasises the relevance of a policy for equal distribution of income, goods and know-how for developing countries, but also the negative impact that severe socio-economic inequalities can have on a widespread fertility decline (Repetto 1978; Cook and Repetto 1982). More recently, Wilkinson and Picket (2009) show that the more unequal a society is, the more numerous and disastrous are its social problems, indicating that greater equality can benefit not only the poor but also the middle and upper classes.

4.4 Uncertainties

The complex relationship between demography, economic growth and development and the nature of Africa's integration into the global political economy are at the root of many uncertainties about the continent's future. This section outlines the relevance of three main uncertainties for the future of African development. These uncertainties relate to demography, policies in other sectors and demo-economic relationships.

4.4.1 Uncertainties Related to Demography

What will Africa's demography look like in the coming decades? The rate of mortality decline, under the constraint of the dynamic of the HIV/AIDS epidemic in some countries, is one important factor in this future. Although mortality decline has been significant since the 1960s, it has slowed down recently. This situation is partly due to the economic and political crises and structural adjustment programmes (SAPs) that have disorganised health care systems. If the SAPs have not always led to reduced public funding dedicated to health, they have led to a decreased supply of health care and a decrease in household demand for care, factors slowing down health gains (Nassar 1993; Gogué 1997). Political and economic stability and the development of the rule of law will be decisive in ensuring improved efficiency in these health systems (Vimard 2007). For the future, it is also hoped that major global health initiatives will achieve their full objectives. Pursuing these global initiatives could improve the efficiency of funding, equity of access to health care and public health outcomes on decisive points to trigger rapid mortality decline (World Health Organization Maximizing Positive Synergies Collaborative Group 2009).

However, the pace of fertility decline remains the key factor for population growth. Although fertility decline has been occurring in most African countries, its pace has varied greatly between countries; some evidence suggests various transitions have stalled – about two-thirds of the sub-Saharan

countries showed no significant fertility decline during the most recent period.[18] Poor economic progress, the slowdown of mortality decline and limited recent efforts in family planning have contributed to this situation (Bongaarts 2008). This uncertain transition clearly has effects on future demographic trends with respect to population growth, size and age structure.

Regarding projections for 2025–2030, the medium-fertility assumption from the latest United Nations projections (United Nations 2009) predicts that fertility will decline to a fertility rate of 3.2 children per woman for Africa as a whole, 3.4 for sub-Saharan Africa and 2.28 for North Africa. Under the high variant, fertility is projected to remain at 0.5 children above the fertility in the medium variant and under the low variant, fertility is projected to remain 0.5 children below the fertility in the medium variant, allowing for alternative scenarios.[19] Based on these fertility variants, the annual population growth rate will vary between 1.38 and 1.99 per cent for 2025–2030 compared to the current growth of 2.44 per cent for 2005–2009 (cf. Table A.4.3). The estimated levels of growth are higher in sub-Saharan Africa than in North Africa, and the drop in demographic growth should be higher in North Africa.[20]

Based on estimations for population size, in 2030 Africa is expected to have a population of 1.4–1.6 billion inhabitants based on a population of 921 million in 2005. By 2030, the African population should increase by 57 to 74 per cent in 25 years, a considerable increase. The growth in size should be higher in sub-Saharan Africa than in North Africa, with an increase of 63 to 80 per cent south of the Sahara and 34 to 50 per cent in the north. It must be noted that in 2030, the population of sub-Saharan Africa is expected to reach approximately 1.25 billion individuals (±60 million individuals) versus 725 million in 2005. The potential for growth remains in sub-Saharan Africa, regardless of intensity. This is all the more so since population size is more likely to fall on the high end of the range (except for Southern Africa), given poor progress in modern contraception, a major factor in fertility decline (Guengant 2007; Vimard and Fassassi 2009). For North Africa, population growth – although significant – would be contained since the population is expected to reach 277 million inhabitants (with an uncertainty range of ±16 million) compared to 195 million in 2005.

Unlike the stabilisation observed in most other developing regions, Africa's population will continue to grow at a rapid pace over the coming decades. However, this tempo still remains poorly assessed in sub-Saharan Africa due to existing inequalities between countries and variations in past trends, making population growth unpredictable over the medium or long term. In strictly demographic terms, progress in the prevention and treatment of HIV/AIDS on the one hand, and progress in contraception on the other hand are major factors affecting this growth. Changes in priorities and implemented policies will be important here.

4.4.2 Uncertainties Related to Policies in Other Key Sectors

Demographic change and especially the slowing down of population growth in Africa partly depend on the effects of policies in the education and health sectors. Moreover, certain framework conditions, particularly related to political stability, good governance and high investment in job creation are necessary to sustain population decline within Africa and allow the continent to reap all the potential benefits.

The overall orientation of policies in key sectors still remains poorly understood. At this point, the Washington Consensus has been generally accepted as a relative failure for African countries, as the passage of a vision favouring state intervention to a strategy based on the power of markets significantly increased the number of the poor. The slow growth of employment in the modern sector has meant growth of the informal economy and increased unemployment (Stiglitz 2002). An analysis of 108 developing countries shows that countries faithfully applying Washington Consensus recommendations have not generally achieved better economic results than the others – either in terms of economic growth, human development or debt reduction – though they experienced the social consequences of adjustment following the reduction of social spending and subsidies (Berr and Combarnous 2004). In parallel, a positive relationship has been demonstrated between good governance and improved economic performance (Kaufman and Kraay 2003). Research has also shown that economic performance is more dependent on the quality of public institutions than on economic policies (Knack and Keefer 1995). As a result, international institutions have come to question neoliberal policies, imposed on African countries as the preferred way out of the crisis in the late 1970s (World Bank 1997).

A new consensus on the role of institutions has emerged, recognising that good governance is essential for the proper functioning of the market. This applies particularly in sub-Saharan Africa, where "states should develop, not reduce, the public sector and radically improve the quality of public services, which requires institutional capacity, especially in the areas of regulation, the provision of services and social spending" (Manuel 2003). As a result of this shifting consensus, reforms have made significant progress in many African countries, which may explain the improved economic performance during the last decade compared to the previous decade (Manuel 2003).

Currently, the international community's commitment to cut poverty in half between 2000 and 2015 and the promotion of equity (World Bank 2005) set the new framework for sectoral policies and development aid. However, the impact of this new development approach must be put into perspective regarding policy and programme content. Firstly, the content of the MDGs and their primarily quantitative formulation places them within the international institutions' traditional approach that puts a greater emphasis on addressing poverty than its underlying causes. Furthermore, broader development goals to seek greater equity (World Bank 2005) remain out of sync with traditionally recommended policies (Cling et al. 2005).

Given the importance of Africa in international development policy, discussions relating to a shifting development consensus introduce a range of uncertainties. Will the post-Washington consensus simply represent an addition to the earlier consensus or a challenge to its neo-liberal foundations? What balances or imbalances between the measures conducive to market development and those in favour of state development may emerge? What will be the priorities and importance of funding for greater equity? These are questions for debate (Boyer 2001; Berr and Combarnous 2004; Stiglitz and Serra 2008) that will determine the content of future development paradigms and development assistance and influence the futures of African economies and societies.

Beyond these questions about the nature of the international consensus, new questions arise in connection with the emergence of a school of thought supporting the contextualisation of development policies (Hugon 1999; Rodrik et al. 2008). Generally, African states are highly dependent on external funding for their development programmes; in addition, they are deprived of the maximum expertise since international institutions, major NGOs and private enterprises employ most African experts. Many African states have lost capacities to initiate development policy and are reduced to applying economic and social policies defined by international agencies that determine whether they will receive external financial resources (Tidjani Alou 2001).

In response to this situation, the Paris Declaration on Aid Effectiveness defines a concrete action plan to improve the quality of aid and its development impact. Part of this plan is that countries receiving aid exercise effective sovereignty over their policies and development strategies, allowing national governments to better define how development goals can be achieved within their countries. A first evaluation of the declaration nevertheless highlights the limits of the action plan (Wood et al. 2008). It will take several years to judge the contributions of process initiated by the Paris Declaration and how donors conform to its instructions.

Therefore, uncertainty remains about the ability of African governments to define their own economic and social policies, based on this international consensus but taking into account each country's specificities. This capacity will initially depend on governance requirements, peace and security, which are the main foundations of efficient government action and which pose problems in Africa, despite recent progress (Stern 2005). The chances of success of economic growth and human development policies are greater in countries with sustainable domestic security. Uncertainties are greatest in countries that are politically unstable or subject to recurrent civil conflicts. For example, the ability of the Democratic Republic of Congo to stop rebellion, ensure the security of its people and establish the rule of law are all highly uncertain elements affecting its development prospects. In sum, uncertainties relating to other key sectors relate to how international development policies might take account of African specificities (weak states, commodity dependant economies, widespread poverty, etc.) and how individual countries can develop development strategies suited to their history and needs of their people.

4.4.3 Uncertainties Related to Demo-Economic Relationships

Sub-Saharan Africa is extremely fragmented, with 27 countries having less than 10 million inhabitants (in 2005) and 20 countries whose GNP is below $10 billion (in 2007) for the 49 countries that make up the region. However, there is a concentration of economic activity and population with just five countries accounting for 68 per cent of total production and 29 per cent of total population (Table 4.3). Consequently, the future of demo-economic relationships in sub-Saharan Africa depends on a few key countries that are major actors representing potential 'drivers of growth' (World Bank 2006).

Given that most of the other countries have low economic and demographic weights, it must be assumed that sustainable development can only move forward within regions surrounding these key countries. Fortunately, these are spread out over the sub-continent, from Southern Africa (South Africa) to West Africa (Nigeria) and across Central Africa (Angola) and East Africa (Kenya, Sudan). The spillover effect triggered by these countries will depend on their own internal dynamics, mostly resting on their medium- and long-term political and social stability. With the long civil war that decimated its population and economy (1975–2002) at an end, Angola can now play a greater driving role based on a flourishing oil and mining industry. Conversely, Nigeria currently appears to be hindered by serious internal conflicts. Civil conflicts have also hit Sudan and Kenya, with greater intensity and consistency in Sudan. As for South Africa, the burden of HIV/AIDS on the health care system and its negative impact on productivity due to the deaths of educated young adults has put brakes on its expansion as the regional driver of growth.

Table 4.3 Economic and Demographic Weight of Five Key Sub-Saharan African Countries

Country	Gross domestic product (in millions of dollars, 2007)[a]	Population (in millions, 2005)[b]
South Africa	274	47
Nigeria	137	131
Sudan	37	36
Angola	44	15
Kenya	26	34
All of sub-Saharan Africa	*761*	*905*

[a]World Bank (2008).
[b]United Nations (2005a).

The spillover effects of countries that are drivers of growth will also depend on the level of regional integration and its capacity to promote peace between states, the competitiveness of national economies and the efficiency of social systems. Building regional integration is difficult in sub-Saharan Africa due to political divisions, distance from large international markets, and low economic density (World Bank 2009). Regional integration is also far from responding to these challenges, even when considering the economic progress achieved by the Southern African Development Community (SADC). This organisation, built around South Africa, includes the only sub-Saharan countries where manufacturing accounts for more than one-fifth of total production, evidence of progress towards more equitable economic growth (BIT 2003). Building on initial successes, in 2008, representative countries of the three existing regional organisations in East and Southern Africa worked toward the creation of a larger single market to accelerate economic integration.

In West Africa, progress in regional integration through the Economic Community of West African States (ECOWAS) remains limited because this institution lacks legitimacy and member states give it little power (Tidjani Alou 2005). The future of West African integration appears to be linked to broadening the West African Economic Monetary Union (UEMOA) to include the region's Anglophone countries and strengthening its action for 'the creation of open and competitive markets, based on the rationalisation and harmonisation of the legal environment' that constitutes its main objective.

4.5 Possible Trajectories of Demographic Changes and Development

Current trends in African countries are extremely diverse as evidenced by their disparate levels of economic and demographic growth in the beginning of the twenty-first century. Moreover, from 1996 to 2005, only eight sub-Saharan African countries achieved or came close to an annual growth rate of 7 per cent of GNP, the level needed to meet the MDGs given the population growth rates, while some countries had growth below 1 per cent of GNP, while still others were null or negative.[21] As for demographic growth between 2000 and 2005, it ranged from below 1 per cent in five countries with the lowest rate in Lesotho to over 3 per cent in 12 countries, with the highest rate in Eritrea. Diverse trends are expected to continue into the coming decades, even though the neighbourhood effects of countries that can potentially drive economic growth, development and pioneering demographic behaviours will hopefully lead to a relative homogenisation of courses. Whatever the foreseeable diversity in terms of economic and demographic dynamics, some typical trends can be envisaged, based on the major observed ones and our understanding of the most meaningful interrelationships. Three possible trajectories for Africa's future have been retained. The first one concerns the demographic bonus that Africa may experience. The second trajectory is driven by the growth of an open economy. The third trajectory corresponds to the spread of poverty traps.[22]

4.5.1 The Full Effect of the Demographic Bonus on Sustainable Development

This trajectory favours demographic growth control as the first step of a virtuous circle towards primarily endogenous development that is equitable and sustainable. In this trajectory, demographic uncertainties have been lifted in favour of reduced population growth. An actual improvement in family planning programmes coupled with parents' lowered demand for children results in a further decline in the number of births. This triggers a rapid catch-up effect by increasing health care coverage rates for mothers and children and school enrolment rates for primary followed by secondary levels (Guengant 2007). More broadly, changes in the population pyramid favouring adult working-age individuals over dependant populations promote improvements in educational and health levels. These advances in education and in health lead to decreases in unemployment and under-employment and an increase in work productivity. By containing unemployment and poverty among young people, education can also break the intergenerational cycle of poverty currently predominating both in urban and rural settings.

When accompanied by increased investments in the agricultural sector, progress in education and health in rural settings leads to improved agricultural productivity. In turn, this raises family incomes that are currently too low, while transferring a portion of the resources from this sector (labour, primary production) towards secondary or service activities with greater added value. This progression promotes improved valorisation of primary production and the strengthening of industrialisation and urbanisation, both factors that accelerate the demographic transition.

Secondly, the process of agglomeration and population densification provokes a surge in demand, driving economic growth. This demand increases and diversifies industrial and artisan production and business that are profitable for the urban economy, but also increases solvent demand for food products. This increase contributes to a new phase in agricultural development that responds positively to demands placed on the market through enhanced productivity. In this context of high demand, higher population density and improved human capital promote the implementation of new farming techniques that increase productivity, protect soil fertility and decrease land use. This is the first step towards transforming agriculture into a stabilised system in terms of land use and its reproducibility while protecting the environment by conserving forests and sensitive ecological areas still available.

This trajectory follows Boserup's model, where agricultural technical progress results from demographic pressure (Boserup 1970); the West African Long Term Prospective Study (WALTPS) model constructed in the 1990s where economic growth is drawn from urban demand (Cour 1994), and

the World Bank sustainable development model, where environmental and resource conservation are conditions for long-term sustainable agricultural development (Cleaver and Schreiber 1994). The trajectory corresponds to implemented sustainable development activities based on the quick control of population growth, economic growth that is highly endogenous (first on a regional and then on a continental level), improved human capital and environmental conservation. It assumes quickly lifting the demographic constraint and the implementation of sectoral policies focused on self-reliance and social policies that promote equality.

4.5.2 From Growth and Control of an Open Economy to Demographic Change

This second trajectory rests on African economies' growing integration into the international economy due to progress in productivity and gains in competitiveness. It presents great potential for economic growth, an important factor in demographic transformations and the eventual control of population growth. This virtuous scenario is related to changes in the international environment and regional integration and results from a set of external (progression of multilateralism, diversification of partners in Asia and North America) and internal factors (improving governance and security, creating an environment conducive to the attractiveness of capital).

This trajectory assumes the implementation of sectoral policies and business legislation that promote liberal policy and a move away from extensive economic growth to more intensive growth. This supposes major internal adjustments, significant physical and human investments and considerable external private investment. This trajectory also assumes that substantial progress will occur in regional integration. This policy leads to growth in the private sector, intensification of agriculture and diversification of exporting mining products and services. This trajectory based on international competitiveness corresponds to improved formation of human capital, specialisation in more technically advanced products, and greater interregional mobility of labour- and capital-related factors. Acceleration of regional integration increases labour mobility and population movements towards urban centres and coastal areas. The urban informal economy and extensive agriculture continue to seek labour, even if rural and urban production intensifies overall. The success of this economic growth model requires high-quality and far-reaching basic education and health care systems that will improve work productivity and qualifications of the workforce.

With rapid progress in education and urbanisation, an increased number of educated and urbanised wage earners might support women's professional projects and improved human capital among the new generation. These changes could trigger a decrease in demand for children and fertility as well as a slow-down in demographic growth. The intensification of production, the influx of private capital, and the diversification of the economy limit demand for internal and international labour and curb migration.

Ultimately, this trajectory brings forth high levels of economic growth, founded on a liberal policy of integrating all regional entities into the global economy, which significantly improves the population's education and health levels: improvements which support the transformation of reproductive behaviours towards reducing population growth.

4.5.3 The Spread of Poverty Traps on a National or Regional Scale

The uncertainties related to the degree of slowing population growth as well as to the effectiveness of the fight against poverty lead us to design a darker pathway of the future of Africa. Given existing processes, the spread of poverty traps can be envisaged through the accentuation of existing vicious circles. These combine uncontrolled demographic growth and the maintenance of a rentier or weak subsistence economy, exacerbated by various national or ethnic claims.

In this third trajectory, the lack of improved efficacy in the health care and education systems and the poor development of family planning services consolidate rapid demographic growth. Fertility and mortality remain high, resulting in a high dependency ratio and the weak improvement of human capital, unfavourable to improving labour productivity and investment. This corresponds to an inability among countries to diversify their production systems towards activities with high added value, strengthen mechanisms for regional integration and enable economic growth that is sufficiently greater than demographic growth to develop investments in social and productive sectors.

Population dynamics are marked by an increase in urban migration that cannot absorb the rural overflow, pressure on the job market and consequently, unemployment and instability. Without the creation of new means of subsistence, the rural exodus alone cannot lessen land pressure, and declining agricultural productivity causes food insecurity. This poverty can be a source of social conflicts even if the population's standard of living maintains itself through expansion of the informal economy. Due to social and economic crises, matrimonial instability progresses and the capacity of family and lineage solidarity systems to alleviate financial difficulties diminish. This worsens the crises' negative effects on living conditions, health and education of the most vulnerable individuals. Exhausting the prospects of personal valorisation within one's country further opens the path to emigration to the West and weakens states even more with brain drain.

A scenario combining overpopulation and agricultural over-exploitation on a more regional scale can be linked to this national-based trajectory. This scenario is rooted in the linkages between a growing rural population and an environment unable to handle excessive densities. Overpopulation causes high deforestation resulting in soil erosion. Simultaneously, excessive demographic pressure leads to diminishing availability of arable land per household, overuse of land and limitations or disappearance of pastures. All

this further impoverishes agricultural families and accelerates rural exodus among individuals, who often have low levels of literacy and training, and who find very few outlets in the urban employment market. This situation, where rural poverty and urban instability reinforce each other, can already be grasped in distinct ecological contexts, whether in the Sahel or in the Ethiopian Highlands. It could spread if investments and improved training for farmers fail to sufficiently improve farming techniques to respond to the demographic pressure in some overexploited rural settings.

This trajectory could have two variants. The first would follow from extensive economic growth based on international revenues (oil and products from mining and plantation agriculture). Hence, the economy would gain from exporting without diversification where high instability of prices would drive down competitiveness and increase foreign debt. This would involve a regression of state intervention in economic and social sectors and resorting to external support. As with any extensive model, this runs the risk of depletion when the state would have limited means to support social systems in a situation of rapid demographic growth.

In the case of serious socio-economic crisis, a scenario that falls back on identity or national values, leading to internal conflicts based on ethnic, religious or social differences or conflicts between neighbouring countries is foreseeable. In a context of specialisation in products with low added value, scarcity and lack of progress in productivity, an engulfing crisis could ensue. Social tensions would lead to discrimination in the labour market affecting both wage earners and those in the informal sector. Internal regional inequalities within countries could increase and intergenerational conflicts could arise as more young people seek jobs in a tight labour market. This economic crisis trajectory is compatible with the Malthusian poverty seen in other parts of the world (Bangladesh, Latin America), where fertility decline would be linked to the breakdown of households and weakening of intergenerational solidarities causing a rise in mortality.

4.6 Conclusion: Regional Dimensions of the Population-Development Relationship

Now as before, low population density, long distances between main activity centres and intense divisions between countries contribute to underdevelopment in sub-Saharan Africa (World Bank 2009; Iliffe 1995). Thus, the proximity between economic agents is restricted and the diffusion of pioneering demographic behaviours within sub-Saharan Africa is also impeded. This gap also prevails between sub-Saharan Africa and the rest of the world, particularly with North Africa, which does not suffer from the same geographical and political hardships.

These structural drawbacks in large part explain the region's inability to benefit from the initial phases of its demographic growth to bring about a true economic take-off while reducing population growth, as other developing

regions have been able to do. Currently, several sub-Saharan countries are characterised by a population increase that is too fast relative to production system capacities and major difficulties in freeing up sufficient resources for education and improving human resources. For these countries, young populations continue to be a burden more than a resource. The future choices and content of development and population policies are key issues since the usual model for demo-economic change implemented in other regions has often failed due to deficient health, the low level of technology and the high level of the dependent population (Clapham 2006).

We have demonstrated the existence of virtuous circles in sub-Saharan Africa that must be encouraged and prioritised. For example, progress in schooling improves women's education and participation in economic activities. This contributes to a decline in under-five mortality, fertility and population growth. This declining population growth has an important indirect influence on the development by allowing a reduction in the dependency ratio, outlined above, which in turn promotes poverty reduction and investment in human capital as factors of socio-economic progress. We have also highlighted several vicious cycles that must be bypassed or prevented. Certainly, the most dramatic situation is where civil conflicts cause the disorganisation of social systems and production structures, growing monetary poverty and deteriorating living conditions, causing a rise in mortality while instilling serious social instability that devastates institutions. Highlighting these cycles demonstrates that we are faced with a global system where the demographic dynamic is an endogenous component that affects other components while being subjected to their influences. The population growth decline will allow for increased economic and social investments. However, sustained control of African demography will only happen when healthcare and education and more broadly, all components of human and social capital, are improved. Political action must take into account the effects and reciprocal counter-effects of demographic policies and programmes in other key sectors for the population variable as well as for other social and economic structures.

Encouraging cumulative development processes will require overcoming the impediments of economic geography and resolving the most crucial demographic issues. Accelerating urbanisation while improving infrastructure, promoting land-use development by building transportation networks and improving regional integration through political cooperation are preferred means for improving the geography of development (World Bank 2008). UNCTAD considers strengthening intra-African integration to be equally indispensable by defining two goals: to reinforce political unity throughout the continent and promote economic growth and development (Cnuced 2009).

The promotion of regional integration, defended by international institutions and centred on a few countries that are potential drivers of growth, could result in regional areas for development if the liberalisation of

migration movements enables a better distribution of human resources and population policies are adapted in each region. Today, demographic constraints for sustainable development vary across regions. The economic and social development of Southern Africa is hindered by the high prevalence of HIV/AIDS that makes combating this pandemic a priority. This is as important as the priority given in West and East Africa on controlling fertility by ensuring universal access to high-quality family planning programmes. This implies that the international priorities imposed on the countries be greatly adjusted to a more regional understanding of population problems and by acknowledging each country's specificities regarding demographic issues, as well as their geographic and economic characteristics. Nevertheless, progress in human development can be decisive at a certain point in accelerating demographic changes, particularly a decline in mortality and controlling fertility.

As for North Africa, it must still reinforce fertility decline, particularly in countries where it has advanced the least (Egypt, Libya). It must also reform its production systems to provide employment to a growing active population, while pondering what further programmes are needed to compensate for the effects of an ageing population occurring for the first time in Africa.

In addition to the issues specific to its large regions, we conclude with two major issues facing Africa. The first issue relates to rural and agricultural development, given the percentage of population living in rural areas and the need to ensure food security in fast growing cities. In a region where 40 per cent of exports come from the agricultural sector and where poverty mainly affects rural areas, agricultural growth can have a major impact on reducing poverty and fostering economic growth. Consequently, the challenge is to improve investment policies to significantly increase the currently low productivity (World Bank 2006) and ensure that agricultural production systems – traditionally extensive with high land consumption – become sustainable. The second issue concerns land development since over-farmed regions already coexist with desert land or areas undergoing desertification on a continent that will be the most vulnerable to the impacts of climate change, which could lead to reductions in the availability of arable land and declining crop yields.

Regardless of constraints, today North Africa is confronted with the challenge of reaping the full benefits of declining population growth in terms of economic and social development, while sub-Saharan Africa must engage in the virtuous circle of a slow-down in population growth and socio-economic growth. To drive towards greater sustainable development through population control, socio-economic progress, and sustainable use of resources, these regions have the opportunity to benefit from greater integration into a global market by better defining, and even redefining their development policies using the systemic and context-specific approach outlined in this study.

Appendix

Table A4.1 Demographic Indicators by Region in Africa

Indicators	Population (thousands)	Density (inh. per sq. km)	Annual growth rate (%)	Birth rate (per 1000)	Death rate (per 1000)	TFR (children per woman)	Life expectancy at birth (in years)	Under-five mortality (per 1000 live births)	Population under 15 years of age (%)	Population over 60 years of age (%)	Urban population (%)	Active population (% aged 15–64 years)
Year	2005	2005	2000–2005	2000–2005	2000–2005	2000–2005	2000–2005	2000–2005	2005	2005	2005	2000
Source	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(2)	(3)
Southern Africa	54,055	20	0.7	24	17	2.9	48	79	33	7	57.3	66.3
East Africa	287,707	30	2.2	38	15	5.0	49	159	41	5	22.7	80.3
Central Africa	109,461	17	2.6	46	20	6.2	43	204	46	5	41.1	74.5
West Africa	263,636	43	2.4	42	17	5.8	46	193	44	5	42.9	72.3
Sub-Saharan Africa (altogether)	714,859	29	2.3	40	17	5.3	46	172	42	5	35.9	–
North Africa	190,895	22	1.7	26	7	3.2	67	61	33	7	50.9	59.8
Africa	905,936	30	2.2	38	15	5.0	49	159	41	5	38.7	71.5

Sources: (1) *United Nations*, World Population Prospects: The 2004 Revision: Wall Chart, Population Division, Department of Economic and Social Affairs, New York, 2005; (2) *United Nations*, World Urbanization Prospects: The 2007 Revision. Highlights, Population Division, Department of Economic and Social Affairs, New York, 2008; (3) *OIL*, Rapport sur le travail dans le monde, Geneva, 2000.

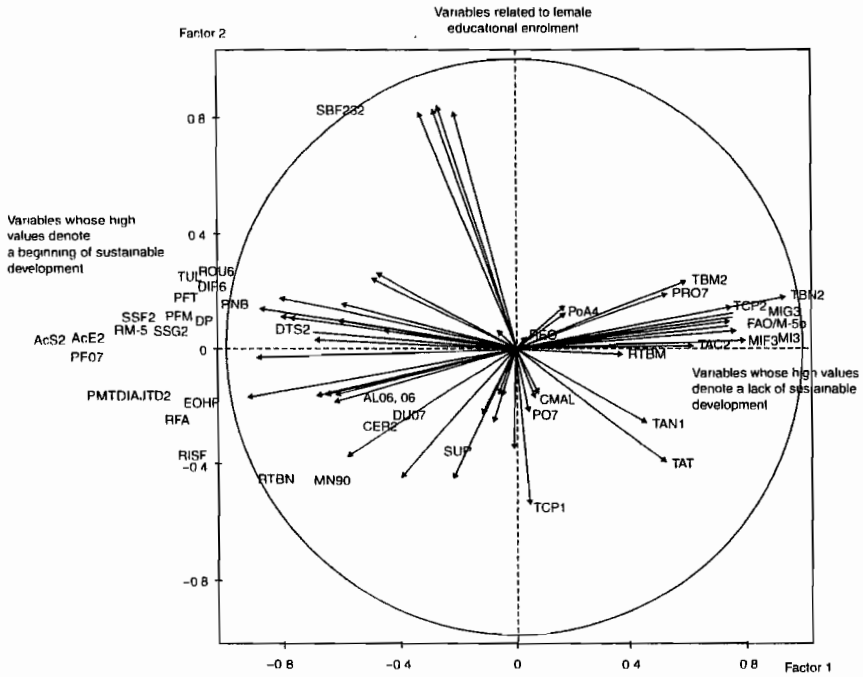

Figure A4.1 Representation of Variables in the First Factorial Plane

Note: Figure 2 defines the countries' situation according to the most determinant variables in terms of socio-demographic and health change. Three groups of variables are underscored in this graph: (1) Variables that discriminate countries the most are those referring to health progress, access to drinking water, secondary enrolment, contraception use, etc. These are located on the left side of the graph; (2) Variables for which high values imply a lagging development, such as under-five mortality, migration and percentage of rural population, etc. These variables are situated on the right side of the graph; and (3) Variables referring to education, particularly female education, located at the top of the graph.

List of variables in the Figure

Abbreviation	Wording	Abbreviation	Wording
AcE2	% of population with access to water (2004–2006)	RFA	% de decrease of the total fertility rate among the 15–19 years old (1997–2007)
AcS2	% de population with access to sanitation (2004–2006)	RISF	% of decrease of the TFR (1997–2007)
AIC2	Daily calorie intake per inhabitant (2003)	RM-5	% of decrease of the under-five mortality (1992–2007)
DTS2	Total health expenditure as % of GDP (2003–2005)	RNB	Gross national income per capita (2006, in $US)
EOHF	Life expectancy at birth (2007)	RTBN	% of decrease of the crude rate of birth (1997–2007)

Continued

List of variables in the Figure – continued

Abbreviation	Wording	Abbreviation	Wording
M-5b	Under-five mortality in 2007	SBF2	Gross enrolment rate for girls (2005–2007)
MIF3	Infant mortality rate (2007, female)	SSF2	Gross enrolment rate in secondary schools (2005–2007, female)
MIG3	Infant mortality rate (2007, male)	SSG2	Gross enrolment rate in secondary schools (2005–2007, male)
MN90	Net migration in 1990	TAN1	Natural growth rate (1996–2007)
MTD1	Average variation of the import dependency rate (2001–2005)	TAT	Adult illiteracy rate in % (2007)
PF07	% of female population (2007)	TBM2	Crude death rate (2007)
PFM	Modern contraceptive prevalence (2003–2007)	TBN2	Crude birth rate (2007)
PR07	% of rural population (2007)	TCP2	Population growth rate (1996–2007)

Table A4.2 Population Size and Rate of Growth According to United Nations' Variants, 2005–2030

	Population Size (in thousands)			
		in 2030		
	in 2005	Medium Variant	High Variant	Low Variant
Southern Africa	55,041	64,037	68,244	59,840
East Africa	287,413	518,064	544,638	491,542
Central Africa	113,185	201,602	211,561	191,682
West Africa	269,990	463,133	486,099	440,209
Sub-Saharan Africa	725,629	1,246,836	1,310,542	1,183,273
North Africa	195,444	277,351	293,484	261,239
Africa	921,073	1,524,187	1,604,026	1,444,512
	Rate of growth (in %)			
		in 2025–2030		
	in 2005–2009	Medium Variant	High Variant	Low Variant
Southern Africa	1.04	0.43	0.80	0.02
East Africa	2.59	2.00	2.29	1.69
Central Africa	2.60	1.95	2.23	1.65
West Africa	2.51	1.83	2.11	1.52
Sub-Saharan Africa	2.44	1.83	2.11	1.51
North Africa	1.71	1.05	1.36	0.71
Africa	2.29	1.70	1.99	1.38

Source: United Nations (2009).

Table A4.3 Economic Growth and Demographic Growth by Country

Level of demographic growth: mean annual rate of population growth (in %), 2000–2005	Level of economic growth: mean annual rate of growth of per capita GDP (in %), 2000–2004			
	Negative or Null Growth (from –3.4% to –0.0%)	**Low Growth (from 0.1 % to 1.9%)**	**Sustained Growth (from 2.0% to 3.9%)**	**High Growth (4% and over)**
3 % and over	Eritrea (–3.4; 4.3) Somalia (0.0; 3.2) Niger (0.0; 3.4) Burundi (0.0; 3.0) Congo (–0.5; 3.0)	Uganda (1.8; 3.4) Benin (1.2; 3.2) Burkina Faso (0.3; 3.2)	Chad (3.6: 3.4) Guinea Bissau (3.8; 3.0) Mali (2.3, 3.0)	Sierra Leone (5.3; 4.1) Mauritania (4.0; 3.0)
Between 2% and 2.9%	D. R Congo. (0.0; 2.8) Madagascar (–1.5; 2.8) Togo (–0.7; 2.7) Comoros (–0.1; 2.6) Malawi (–0.3; 2.3) Equatorial Guinea (0.0; 2.3) Djibouti (0.0; 2.1) Libya (0.0; 2.0)	Gambia (0.8; 2.8 Ethiopia (1.3; 2.4) Rwanda (0.3; 2.4) Senegal (1.6; 2.4) Guinea (1.0; 2.2) Kenya (0.3; 2.2)	Sao Tomé and Principe (2.3; 2.3) Nigeria (27; 2.2) Ghana (2.4; 2.1)	Angola (4.6; 2.8) Gambia (4.5; 2.8) Cape Verde (40.0; 2.4) Mozambique (6.0; 2.0) Tanzania (46; 2.0)
Between 1% and 1.9%	Egypt (0.0; 1.9) Côte d'Ivoire (–2.4; 1.6) Liberia (–2.8*; 1.4)	Zambia (0.3; 1.7) Gabon (0.3; 1.7) Central African Republic (0.3; 1.3)	Cameroon (2.7; 1.9) Algeria (3.0; 1.5) Morocco (3.0; 1.5) Namibia (3.2; 1.4) Tunisia (3.4; 1.1) Mauritius (2.9; 1.0) South Africa (2.2; 0.8)	Sudan (7.5; 1.9)
Below 1 %	Seychelles (–2.3; 0.9) Zimbabwe (–6.2; 0.6) Swaziland (–0.7; 0.2)	Lesotho (1.9; 0.1)		Botswana (5.7; 0.1)

Note: The first number in parentheses corresponds to the rate of economic growth per capita, the second to the rate of demographic growth during the respective observation periods.

Source: *World Bank*, Africa Development Indicators 2006, Washington DC, Oxford University Press, 2006, 152 p.; United Nations, World Population Prospects: The 2004 Revision: Wall Chart, Population Division, Department of Economic and Social Affairs, 2005.

Notes

1. The demographic transition describes the shift from a demographic regime of high mortality and fertility to one of low mortality and fertility. The period during which mortality decline precedes the fall of fertility refers to a phase of more or less intense and lasting population growth depending on the paces of mortality and fertility decline respectively, and on the time interval between these two declines.
2. The UN prospects are relatively reliable insofar as they are based on the most recent survey findings and on assumptions regarding future behaviours which follow recently observed trends. The medium variant – our main reference – is based on a fertility decline. The variant is also based on an assessment of the impact of HIV/AIDS using the levels of access to antiretroviral treatments in the worst-affected countries. Regarding the projections twenty years ahead, these can be considered as a globally acceptable basis, allowing for the fact that demographic phenomena are characterised by a relative inertia. However, long-run prospects must be considered with caution since some unknown phenomena may not be taken into account such as new pandemics, economic crises, etc. These should be seen more as a basis for reflection.
3. *Source*: OECD website, http://stats.oecd.org, 26 June 2009.
4. The United Nations Department of Economic and Social Affairs and UNHCR websites.
5. Urban populations will be nearly 40 times larger over a century, with cities counting an estimated 33 million inhabitants in 1950; 373 million in 2007; 658 million in 2025; and 1234 million in 2050 (United Nations 2008).
6. The last stage of the demographic transition is one in which mortality and fertility are low, with a life expectancy exceeding 70 years and a fertility rate corresponding to the threshold of replacement of generations (2.1 children per woman). The phases corresponding to the middle of the demographic transition are those where mortality and fertility decrease without reaching their lowest level.
7. The fertility transition is the passage from a high-fertility stage, whose level varies according to the populations but which may reach 6 to 7 children per woman, to a low-fertility stage corresponding to the threshold of replacement of generations.
8. The dependency rate indicates the number of non-working population in relation to the number of working individuals.
9. These include the following countries: Cape Verde, Congo, Eritrea, Ethiopia, Kenya, Rwanda, Sierra Leone, Somalia and Tanzania.
10. The population issue has also been disregarded as a result of global decline of population growth, particularly due to high fertility decline in Asia and Latin America, which has put the population problem and the fear of an exploding population in the background.
11. Data used for the analysis are drawn from African Development Bank (2008).
12. There is no strict correspondence between the position of countries in Figure 4.1 and their classification into the five groups. The figure corresponds to an automatic categorisation, made by mathematical procedures. The typology refines this categorisation taking into account a number of geographical factors in grouping countries that are somewhat less homogeneous in terms of the variables considered in the PCA.

13. In this section, we deal with the Maghreb countries since the other North African States stand apart in different ways. Egypt, slightly behind the Maghreb countries in its demographic transition, is focused on its geostrategic relations more towards the Middle East. Sudan is grouped with sub-Saharan Africa based on close cultural, socio-economic, and demographic similarities.
14. The four Maghreb countries are among the fifteen countries of the world that have benefited from the highest fertility decline between 1975–1985 and 2000–2005 (United Nations 2009).
15. Based on the medium variant from United Nations (2009).
16. The history of populations shows that fertility decline is a structural phenomenon that seldom reverses, except in cases of major events such as world wars and its catch-up effects. Once fertility begins to decline in a significant manner, it may stall or fluctuate slightly around an equilibrium point; however, low fertility remains a permanent component of the demographic regime.
17. 'Malthusian' situations exist where demographic pressure creates high tensions and plays a negative role, as seen in the highlands of Madagascar, the hills of Burundi and Rwanda, the Comoros Islands, and along Lake Chad or even in Sahelian areas threatened by drought. However, there are also 'Boserupian' situations where high density leads to agricultural and social innovations, as demonstrated by the examples of positive adaptations to demographic pressures observed in the Bamileke highlands, Kenya and Togo (Hugon 2007; Quesnel and Vimard 1999).
18. Fertility in sub-Saharan African countries has decreased annually, going from –0.07 children per woman to –0.02 children per woman for 1998–2004 (Bongaarts 2008)
19. A constant fertility variant was also developed as a reference point by the United Nations; we have not included it here since it provides no predictive outcomes.
20. Distinctions between the different areas of sub-Saharan Africa are quite significant. On the low end, Southern Africa's annual growth of 0.4% is contrasted with other regions that are situated between 1.8% and 2% (data for medium variants).
21. This annual rate of 7 per cent is the level of growth adopted by the New Partnership for Africa's Development to achieve the MDGs, particularly the goal of reducing by half the proportion of Africans living in poverty by the year 2015 (NEPAD 2001, Base Document).
22. Construction of these trajectories was inspired by a prospective study conducted in Côte d'Ivoire in the early 2000s (Hugon et al. 2002).

References

African Development Bank (2008) *Statistiques Choisies sur les Pays Africains 2008, Vol. XXVII*. Tunis: Division des statistiques économiques et sociales.

Anoh, A. (2009) Offre et Demande de Planification Familiale en Afrique Subsaharienne, in: R. Fassassi, K. Vignikin, and P. Vimard (eds.), *La Régulation de la Fécondité en Afrique: Transformations et Différenciations au Tournant du XXIe siècle*. Louvain-la Neuve: GRIPPS-LPED-Academia-Bruylant, pp. 40–66.

Behrman, J. (1996) The Impact of Health and Nutrition on Education. *The World Bank Research Observer* 11 (1): 23–38.

Berr, E. and Combarnous, F. (2004) L'impact du Consensus de Washington sur les Pays en Développement: une Évaluation Empirique. Document de travail, IFREDE-GRES-Université de Bordeaux: Centre d'Économie du Développement.

BIT (2003) Le Travail Décent au Service du Développement de l'Afrique, Dixième Réunion Régionale Africaine, Addis-Abeba, décembre 2003, Rapport du Directeur Général. Geneva: International Labour Office.

Blanchet, D. (1991) Modélisation Démo-économique. Conséquences Économiques des Évolutions Démographiques. Paris: INED-PUF.

Bloom, D. and Sachs, J. (1998) Geography, Demography and Economic Growth in Africa. *Brookings Papers on Economic Activity* (2): 207–295.

Bloom, D.,Canning, D., and Sevilla, J. (2003) *The Demographic Dividend. A New Perspective on the Economic Consequences of Population Change*. Santa Monica: Rand.

Bongaarts, J. (2008) Fertility Transitions in Developing Countries: Progress or Stagnation? *Studies in Family Planning* 39 (2): 105–110.

Boserup, E. (1970 [1965]) Évolution Agraire et Pression Démographique, Paris: Flammarion.

Boyer, R. (2001) L'après-consensus de Washington: Institutionnaliste et Systémique ? *L'Année de la Régulation* 5: 13–56.

Brown, G. (2007) Tunisia: The Debut of Family Planning, in: W. Robinson and J. Ross (eds.), *The Global Family Planning Revolution: Three Decades of Policies and Programs*. Washington, DC: The World Bank, 59–69.

Brunet-Jailly, J. (2002) La Santé, in: G. Tapinos, P. Hugon, and P. Vimard, *La Côte d'Ivoire à l'Aube du XXIe Siècle*. Paris: Karthala, 325–367.

Caldwell J. (2005) On Net Intergenerational Wealth Flows: An Update. *Population and Development Review* 31 (4): 721–740.

Cleaver, K. and Schreiber, G. (1994) *Reversing the Spiral. The Population, Agriculture and Environment Nexus in Sub-Saharan Africa*. Washington DC: The World Bank.

Cassen, R. (dir.) (1994) *Population and Development: Old Debates, New Conclusions*. New Brunswick-New Jersey-Oxford: Transaction Publishers.

Clapham, C. (2006) The Political Economy of African Population Change. *Population and Development Review* 32: 96–114.

Cleland J. and Wilson, C. (1987) Demand Theories of the Fertility Transition: An Iconoclastic View. *Population Studies* 41 (1): 5–30.

Cleland, J. and Sinding, S. (2005) What Would Malthus say about AIDS in Africa? *The Lancet* 366 (9500): 1899–1901.

Cling, J. P. et al. (2005) Le Développement, une Question de Chances? A Propos du Rapport sur le Développement dans le Monde 2006 «Equité et développement», Document de Travail DT/2005-15. Paris: DIAL.

Cogneau, D. and Grimm, M. (2002) AIDS and Income Distribution in Africa: A Micro-simulation Study for Côte d'Ivoire. Document de travail 15. Paris: DIAL.

Cook, L. and Repetto, R. (1982) The Relevance of the Developing Countries to Demographic Transition Theory: Further Lessons from the Hungarian Experience. *Population Studies* 36 (1): 105–128.

Cour, J-M. (1994) Analyse Démo-économique Rétrospective et Esquisse d'Image Économique à Long Terme de la Région Afrique de l'Ouest. Paris: BAD/OCDE/CILLS.

Courbage, Y. (2002) Sur les Pas de l'Europe du Sud: La Fécondité au Maghreb. Expert Group Meeting on Completing the Fertility Transition. New York: United Nations Population Division.

Cnuced (2009) Le Développement Économique en Afrique. Rapport 2009: Renforcer l'Intégration Économique Régionale pour le Développement de l'Afrique. New York/Geneva: United Nations.

Easterlin, R. (1967) Effects of Population Growth on the Economic Development of Developing Countries. *Annals of the American Academy of Political and Social Science* 369: 98–108.

Ferry, B. (2007) *L'Afrique Face à ses Défis Démographiques : un Avenir Incertain*. Paris/Nogent-sur-Marne: AFD/CEPED/Karthalà.

Gastineau, B. and Sandron, F. (2004) Famille et Développement Économique et Social en Tunisie. Une Politique de Planification Familiale Intégrée, in: A. Gautier (ed.), *Les Politiques de Planification Familiale. Cinq Expériences Nationales*. Paris: CEPED-LPED-CERPOS, 165–194.

Gautier, A. (2006) L'Information sur les Méthodes Contraceptives Dix Ans après le Programme d'Action du Caire, in: A. Adjamagbo, P. Msellati, and P. Vimard (dir.), *Santé de la Reproduction et Fécondité dans les Pays du Sud. Nouveaux Contextes et Nouveaux Comportements*. Louvain-la-Neuve: LPED/Academia-Bruylant, 41–74.

Gillespie, S., Mason, J., and Martorell, R. (1996) How Nutrition Improves. Nutrition Policy Discussion Paper 15. Geneva: United Nations Administrative Committee on Coordination.

Goesling, B. and Firebaugh, G. (2004) The Trend in International Health Inequality. *Population and Development Review* 30 (1): 131–146.

Gogué, T. (1997) Impact des Programmes d'Ajustement Structurel sur le Secteur de la Santé : Cas du Togo. *Nouvelles Pratiques Sociales* 10 (1): 163–179.

Guengant, J-P. and Rafalimanana, H. (2005) The Cairo Approach: Making Reproductive Health and Family Planning Programmes more Acceptable or Embracing Too Much? Paper presented at the XXV[e] IUSSP International Population Conferences, Tours, 18–23 July 2005.

Guengant, J-P. (2007) La Démographie Africaine entre Convergences et Divergences, in: B. Ferry (dir.), *L'Afrique Face à ses Défis Démographiques : un Avenir Incertain*. Paris/Nogent-sur-Marne: AFD/CEPED/Karthala, pp. 27–121.

Gwatkin, D. et al. (2007) *Socio-Economic Differences in Health, Nutrition and Population within Developing Countries*. Country Reports on HNP and Poverty, Health Nutrition and Population. Washington, DC: The World Bank.

Herbst, J. (2000) *States and Power in Africa: Comparative Lessons in Authority and Control*. Princeton: Princeton University Press.

Hugon, P. (2007) Variables Démographiques et Développement. Le Cas de l'Éducation et de la Santé en Afrique, in: B. Ferry (dir.), *L'Afrique Face à ses Défis Démographiques : un Avenir Incertain*. Paris/Nogent-sur-Marne: AFD/CEPED/Karthala, pp. 155–195.

—— (2006) *L'économie de l'Afrique*. Paris: La Découverte.

—— (1999) Le « Consensus de Washington » en Questions. *Revue Tiers Monde* 40(157): 11–36.

Hugon, P., Tapinos, G., and Vimard, P. (2002) Conclusion, in: G. Tapinos, P. Hugon, and P. Vimard (dir.), *La Côte d'Ivoire à l'Aube du XXI[e] Siècle*. Paris: Karthala, pp. 475–490.

Iliffe, J. (1995) *Africans: The History of a Continent*. Cambridge: Cambridge University Press.

ILO (2003) Le Travail Décent au Service du Développement de l'Afrique, Dixième Réunion Régionale Africaine, Rapport du Directeur général, Addis-Abeba. Geneva: ILO.

Kaufman, D. and Kraay, A. (2003) *Governance and Growth: Causality Which Way?* Washington, DC: World Bank.

Knack, S. and Keefer, P. (1995) Institutions and Economic Performance: Cross-Country Tests Using Alternative Measures. *Economics and Politics* 7 (November): 207–227.

Kuznets, S. (1967) Population and Economic Growth. *Proceedings of the American Philosophical Society* 111(3): 170–193.

Mach, A. (2004) Amartya Sen, Développement et Santé, A Notre Santé. *The WHO Letter*, Geneva: WHO.

Manuel, T. (2003) L'Afrique et le Consensus de Washington. Trouver la Bonne Voie. *Finances et Développement* (September): 18–20.

Mesle, F., Vallin, J. (1997) La Mortalité dans le Monde: Tendances et Perspectives, in: J-C. Chasteland and J-C. Chesnais (dir.), *La Population du Monde. Enjeux et Problèmes*. Paris: INED-PUF, 461–479.

MDG Africa Steering Group (2008) Achieving the Millennium Development Goals in Africa. Recommendations of the MDG Africa Steering Group. New York: United Nations.

Nassar, H. (1993) Quelques Conséquences Sociales des Programmes d'Ajustement Structurel, *Égypte/Monde Arabe* 12–13: 145–177.

Ndulu, B. (2006) Ramping up African Growth: Lessons from Five Decades of Growth Experience. *Economic Affairs* 26 (4): 5–11.

Ndulu, B. and O'Connell, S. (2006) *Policy Plus: African Economic Growth 1960–2000*, AERC Mini-Plenary Session on the Growth Project.

Quesnel, A. and Vimard, P. (1999) Recompositions Familiales et Transformations Agraires. Une Lecture de Cas Africains et Mexicains, in J-P. Chauveau, M-C. Cormier-Salem, and É. Mollard (eds.), L'innovation en Agriculture. Questions de Méthodes et Terrains d'Observation. Paris: IRD Éditions, pp. 319–341.

Repetto, R. (1978) The Interaction of Fertility in the Size Distribution of Income. *The Journal of Development Studies* 14(4): 22–39.

Rodrik, D., Hausmann, R., and Velasco, A. (2008) Growth Diagnostics, in J. Stiglitz and N. Serra (eds.), *The Washington Consensus Reconsidered: Towards a New Global Governance*. New York: Oxford University Press.

Sala-Diakanda, D. (2000) La Position des Gouvernements Africains vis-à-vis des Politiques de Fécondité. De la conférence de Bucarest à celle du Caire, in: P. Vimard and B. Zanou (dir.) *Politiques Démographiques et Transition de la Fécondité en Afrique*. Paris: L'Harmattan, 13–45.

Sen, A. (2000) *Un Nouveau Modèle Économique. Développement, Justice et Liberté*. Paris: Odile Jacob.

Stern, N. (2005) Making Development Work in Africa: our Common Interest, *Economie Publique/Public Economics* 17 (2): 13–32.

Stiglitz, J. (2002) La Grande Désillusion. Paris, Fayard.

Stiglitz, J. and Serra, N. eds. (2008) *The Washington Consensus Reconsidered: Towards a New Global Governance*. New York: Oxford University Press.

Tabutin, D. and Schoumaker, B. (2004) La Démographie de l'Afrique au Sud du Sahara des Années 1950 aux Années 2000. *Population* 59 (3–4): 521–622.

Tidjani Alou, M. (2005) Quelle Peut être la Portée Réelle du Rapport de la Commission pour l'Afrique? *Economie Publique/Public Economics* 17(2): 33–40.

—— (2001) Globalisation: l'État Africain en Question. *Afrique contemporaine* 199: 11–24.

UNAIDS (2008) Rapport sur l'Épidémie Mondiale de Sida 2008. Geneva: UNAIDS.

UNFPA (2009) Financing the ICPD Programme of Action: Data for 2006, Estimates for 2007/08. http://www.unfpa.org/webdav/site/global/shared/documents/publications/2009/advocacy_brochure_2009.pdf (5 August 2010).

UNDP (2008) Human Development Indices: A Statistical Update 2008. http://hdr.undp.org/fr/statistiques/acceder/idh2008/ (25 August 2009).

United Nations (2009) *World Population Prospects. The 2008 Revision*. New York: Population Division, Department of Economic and Social Affairs.

—— (2008) *World Urbanization Prospects: The 2007 Revision*. New York: Department of Economic and Social Affairs.

—— (2007) *World Population Prospects. The 2006 Revision*. New York: Population Division, Department of Economic and Social Affairs.

United Nations (2006) *World Mortality Report 2005*. New York: Population Division of the United Nations.
—— (2005a) World Population Prospects. The 2004 Revision: Wall Chart. New York: Population Division, Department of Economic and Social Affairs.
—— (2005b) UN Millennium Project. Investing in Development: a Practical Guide to Achieve the Millennium Development Goals. New York: United Nations.
—— (1993) Population Growth and Economic Development, Report of the Consultative Meeting of Economists Convened by the United Nations Population Fund, 28–29 September 1992. New York: UNFPA.
Vimard, P. (2007) Synthèse: Entre Présent Contrasté et Avenir Incertain: la Démographie, la Santé de la Reproduction et le Développement en Afrique Subsaharienne, in: B. Ferry (dir.). *L'Afrique Face à ses Défis Démographiques: un Avenir Incertain*. Paris/Nogent-sur-Marne: AFD/CEPED/Karthala, pp. 329–367.
Vimard, P. and Fassassi, R. (2009) L'Évolution de la Contraception en Afrique, in: R. Fassassi, K. Vignikin, and P. Vimard (eds.), *La Régulation de la Fécondité en Afrique: Transformations et Différenciations au Tournant du XXI^e Siècle*. Louvain-la Neuve: GRIPPS-LPED-Academia-Bruylant, 72–101.
—— (2007) La Demande D'enfants en Afrique Subsaharienne, in: B. Ferry (dir.). *L'Afrique Face à ses Défis Démographiques: un Avenir Incertain*. Paris/Nogent-sur-Marne: AFD/CEPED/Karthala, 197–251.
Wilkinson, R. and Pickett, K. (2009) *The Spirit Level. Why More Equal Societies Almost Always Do Better*. London: Penguin Books.
Wood, B. et al. (2008) *Synthesis Report on the First Phase of the Evaluation of the Implementation of the Paris Declaration*. Copenhagen: Danish Ministry of Foreign Affairs.
World Bank (2008) *World Development Report 2009: Reshaping Economic Geography*. Washington, DC: The World Bank.
—— (2007) Enjeux Demographiques du XXI^e Siècle. Le Rôle de la Banque Mondiale. Document de Travail. New York: The World Bank.
—— (2006) Moving from the Year of Africa to the Decade of Africa – from Promises to Results, in: *Africa Development Indicators 2006*, Washington DC: World Bank, pp. 1–21.
——(2005) *Rapport sur le Développement dans le Monde 2006. Équité et Développement*. New York: Oxford University Press.
—— (1997) *Rapport sur le Développement dans le Monde 1997. L'État dans un Monde en Mutation*. Washington, DC: World Bank.
—— (1993) *Rapport sur le Développement dans le Monde 1993. Investir dans la santé*. Washington, DC: World Bank.
World Health Organization (2008) *World Malaria Report 2008*. Geneva: WHO.
—— (2006) The Health of the People: The African Regional Health Report. Brazzaville: WHO Regional Office for Africa.
World Health Organization Maximizing Positive Synergies Collaborative Group (2009) An Assessment of Interactions between Global Health Initiatives and Country Health Systems. *The Lancet* 373(9681): 2137–2169.
Yaakoubd, A-I. and Vimard, P. (2009) La Régulation de la Fécondité au Maroc: Évolution et Différenciation Sociale des Comportements, in: R. Fassassi, K. Vignikin, and P. Vimard (eds.), *La Régulation de la Fécondité en Afrique : Transformations et Différenciations au Tournant du XXI^e Siècle*. Louvain-la Neuve: GRIPPS-LPED-Academia-Bruylant, pp. 221–252.

5

Climate Change and African Development

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Climate change poses the most significant threat to the development of humankind and the earth as a whole (Boyd et al. 2009). As Kofi Annan commented recently, "the speed and scale of climate change is making the traditional knowledge of when to plant and when to harvest, passed down through generations, much less accurate than in the past."[2] Scientific evidence as a whole remains clear: the earth has experienced an average of 0.76°C temperature rise already in the twentieth century, with some effects already noticeable (IPCC 2007a). Climate change itself, defined as any form of climatic inconstancy, has occurred over many millennia (see Box 5.1 for definitions of climate, climate variability and climate change). However, human-induced increases in emissions of carbon dioxide and related gases since the later nineteenth century have made climate change more than just a natural phenomenon. The impacts of a changing climate on Africa and its development are the focus of this chapter. Highly increased rates of change have been recorded, carrying the potential for significant impacts on current and future world populations and environments.

5.1 Climate Change and the Global Development Agenda

The developing world, and particularly Africa, is most vulnerable to the risks of climate change. The Intergovernmental Panel on Climate Change (IPCC) reports that the global average surface temperature is likely to rise by between 1.8°C and 4.0°C by the end of the twenty-first century (IPCC 2007a). Recent evidence has shown that current emissions are higher than those projected by the highest emissions scenario developed by the IPCC (Anderson and Bows 2008; 2011; New et al. 2009; Raupach et al. 2007). Climate change threatens future development but will also undermine many development gains experienced already: it is estimated that even if the goal to limit global temperatures to 2°C rise by 2100 is reached, there will still be a 4 to 5 per cent permanent reduction in annual income per capita in Africa (World Bank 2010), and the Global Humanitarian Forum

Vimard Patrice, Fassassi R. (2011)

Population change and sustainable development in Africa

In : Lundsgaarde E. (ed.) Africa toward 2030 : challenges for development policy

Basingstoke : Macmillan, 63-104. (Rethinking International Development). ISBN 978-0230-53751-4