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World Population Prospects
The 2002 Revision

Volume III: Analytical Report

United Nations

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Department of Economic and Social Affairs
Population Division

World Population Prospects
The 2002 Revision

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NOTE

The designations employed in this report and the material presented in it do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. The term "country" as used in the text of this report also refers, as appropriate, to territories or areas. The designations "more developed", "less developed" and "least developed" countries, areas or regions are intended for statistical convenience and do not necessarily express a judgement about the stage reached by a particular country or area in the developing process.

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PREFACE

This volume presents the analytical report for *World Population Prospects: The 2002 Revision,* the official United Nations population estimates and projections. The analytical report is the third volume of a three-volume set; the earlier two published volumes provide the comprehensive tables[1] and the sex and age distribution[2] of the population of all countries of the world.

A CD-Rom containing the results of the *2002 Revision* population estimates and projections is also available for purchase. A description of these data sets contained in each and an order form appear at the end of this volume.

The *2002 Revision* is the eighteenth round of global demographic estimates and projections undertaken by the Department of Economic and Social Affairs Population Division. Between 1951 and 2000, following an early attempt in the 1940s, 17 revisions of population estimates and projections were published: in 1951, 1954, 1957, 1963, 1968, 1973, 1978, 1980, 1982, 1984, 1988, 1990, 1992, 1995, 1998 and 2000.[3]

This analytical report employs a different format than previous reports. In particular, the first five chapters, provide succinct and easy accessible summaries of the main demographic tendencies covered. More detailed analytical tables are given in the

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[1] *World Population Prospects: The 2002 Revision*, vol. I, *Comprehensive Tables* (United Nations publication, Sales No. E.03.XIII.6).

[2] *World Population Prospects: The 2002 Revision*, vol. II, *Sex and Age* (United Nations publication, Sales No. E.03.XIII.7).

[3] The previous United Nations population estimates and projections have been published in the following: "The past and future growth of world population—a long-range view", *Population Bulletin of the United Nations*, No. 1—December 1951 (United Nations publication, Sales No. 52.XIII.2), pp. 1-12; "The past and future population of the world and its continents" and "Framework for the future population estimates, 1950-1980, by world regions", *Proceedings of the World Population Conference, 1954*, vol. III (United Nations publication, Sales No. 55.XIII.8), pp. 265-282 and 283-328; *The Future Growth of World Population* (United Nations publication, Sales No. 66.XIII.2); *World Population Prospects as Assessed in 1973* (United Nations publication, Sales No. E.76.XIII.4 and corrigenda); *World Population Trends and Prospects by Country, 1950-2000: Summary Report of the 1978 Assessment* (ST/ESA/SER.R/33); *Selected Demographic Indicators by Country, 1950-2000: Demographic Estimates and Projections as Assessed in 1978* (ST/ESA/SER.R/38); *World Population Prospects as Assessed in 1980* (United Nations publication, Sales No. E.81.XIII.8); *Demographic Indicators of Countries: Estimates and Projections as Assessed in 1980* (United Nations publication, Sales No. E.82.XIII.5 and corrigendum); *World Population Prospects: Estimates and Projections as Assessed in 1982* (United Nations publication, Sales No. E.83.XIII.5); *World Population Prospects: Estimates and Projections as Assessed in 1984* (United Nations publication, Sales No. E.86.XIII.3); *World Population Prospects 1988* (United Nations publication, Sales No. E.88. XIII.7); *The Sex and Age Distributions of Population: The 1990 Revision* (United Nations publication, Sales No. E.90.XIII.33); *World Population Prospects: The 1990 Revision* (United Nations publication, Sales No. E.91.XIII.4); *The Sex and Age Distribution of the World Populations: The 1992 Revision* (United Nations publication, Sales No. E.93. XIII.3); *World Population Prospects: The 1992 Revision* (United Nations publication, Sales No. E.93.XIII.7); *The Sex and Age Distribution of the World Populations: The 1994 Revision* (United Nations publication, Sales No. E.95.XIII.2); *World Population Prospects: The 1994 Revision* (United Nations publication, Sales No. E.95.XIII.16); *The Sex and Age Distribution of the World Populations: The 1996 Revision* (United Nations publication, Sales No. E.98.XIII.2); *World Population Prospects: The 1996 Revision* (United Nations publication, Sales No. E.98.XIII.5); *World Population Prospects: The 1998 Revision,* vol. I, *Comprehensive Tables* (United Nations publication, Sales No. E.99.XIII.9); *World Population Prospects: The 1998 Revision,* vol. II, *Sex and Age Distribution of the World Population* (United Nations publication, Sales No. E.99.XIII.8); *World Population Prospects: The 1998 Revision,* vol. III, *Analytical Report* (United Nations publication, Sales No. E.99. XIII.10); *World Population Prospects: The 2000 Revision,* vol. I, *Comprehensive Tables* (United Nations publication, Sales No. E.01.XIII.8 and corrigendum); *World Population Prospects: The 2000 Revision,* vol. II, *Sex and Age Distribution of the World Population* (United Nations publication, Sales No. E.01.XIII.9 and corrigendum); *World Population Prospects: The 2000 Revision,* vol. III, *Analytical Report* (United Nations publication, Sales No. E.01.XIII.20); *World Population Prospects: The 2002 Revision,* vol. I, *Comprehensive Tables* (United Nations publication, Sales No. E.03.XIII.6) and *World Population Prospects: The 2002 Revision,* vol. II, *Sex and Age Distribution of the World Population* (United Nations publication, Sales No. E.03.XIII.7).

annex. Chapter VI, on the demographic impact of HIV/AIDS, provides more details than the other chapters because of the importance of its subject.

Responsibility for this *Revision* rests with the Population Division. The *2002 Revision* was facilitated to a great extent, however, by close collaboration between the Population Division and the regional commissions and the specialized agencies. The Population Division is also grateful to the Department of Economic and Social Affairs Statistics Division for its continuing cooperation.

Selected parts of this *Revision*, as well as other population information, may be accessed on the Population Division world wide web site at www.unpopulation.org.

This publication has been issued without formal editing.

CONTENTS

Page

ANNEX

ANNEX TABLES

No. *Page*

FIGURES

No. *Page*

Explanatory notes

Tables presented in this volume make use of the following symbols:

Two dots (..) indicate that the category is not applicable.
Three dots (…) indicate that the data are not available.
An em dash (—) indicates that the value is zero (magnitude zero).
A minus sign (-) before a figure indicates a decrease.
A full stop (.) is used to indicate decimals.
0 and/or 0.0 indicates that the magnitude is not zero, but less than half of the unit employed.
Years given refer to 1 July.
A hyphen (-) between years, for example, 1995-2000, signifies the full period involved, from 1 July of the first year to 1 July of the second year.

Numbers and percentages in tables do not necessarily add to totals because of rounding.

Countries and areas are grouped geographically into six major areas: Africa; Asia; Europe; Latin America and the Caribbean; Northern America; and Oceania. These major areas are further divided into 21 geographical regions. In addition, for statistical convenience, the regions are classified as belonging to either of two categories: more developed or less developed. The less developed regions include all the regions of Africa, Asia (excluding Japan), and Latin America and the Caribbean, as well as Melanesia, Micronesia and Polynesia. The more developed regions comprise Australia/New Zealand, Europe, Northern America and Japan.

The results of the *2002 Revision* of World Population Prospects were finalized and announced on 28 February 2003. At that time, the group of least developed countries, as defined by the United Nations General Assembly on 12 April 2001 comprised 49 countries: Afghanistan, Angola, Bangladesh, Benin, Bhutan, Burkina Faso, Burundi, Cambodia, Cape Verde, Central African Republic, Chad, Comoros, Democratic Republic of the Congo, Djibouti, Equatorial Guinea, Eritrea, Ethiopia, Gambia, Guinea, Guinea-Bissau, Haiti, Kiribati, Lao People's Democratic Republic, Lesotho, Liberia, Madagascar, Malawi, Maldives, Mali, Mauritania, Mozambique, Myanmar, Nepal, Niger, Rwanda, Samoa, Sao Tome and Principe, Senegal, Sierra Leone, Solomon Islands, Somalia, Sudan, Togo, Tuvalu, Uganda, United Republic of Tanzania, Vanuatu, Yemen and Zambia.

The following abbreviations have been used:

AIDS	Acquired immunodeficiency syndrome
CERPOD	Centre d'Études et de Recherche sur la Population et le Développement
DHS	Demographic and Health Surveys Programme
ECLAC/CELADE	Economic Commission for Latin America and the Caribbean
ESCAP	Economic and Social Commission for Asia
ESCWA	Economic and Social Commission for Western Asia
EUROSTAT	Statistical Office of the European Communities
GFHS	Gulf Family Health Survey
HIV	Human immunodeficiency virus
INSEE	Institut National de la Statistique et des Études Économiques
MICS	Multiple Indicator Cluster Surveys
PAPCHILD	Pan Arab Project for Child Development
PAPFAM	Pan Arab Project for Family Health
SAR	Special Administrative Region

UNAIDS	Joint United Nations Programme on HIV/AIDS
UNHCR	Office of the United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
WFS	World Fertility Survey
WHO	World Health Organization

EXECUTIVE SUMMARY

The *2002 Revision* is the eighteenth round of official United Nations population estimates and projections prepared by the Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat. These are used throughout the United Nations system as the basis for activities requiring population information.

The *2002 Revision* of the official United Nations population estimates and projections breaks new ground in terms of the assumptions made on future human fertility and the impact of the HIV/AIDS epidemic. For the first time, the United Nations Population Division projects that future fertility levels in the majority of developing countries will likely fall below 2.1 children per woman, the level needed to ensure the long-term replacement of the population, at some point in the twenty-first century. By 2050, the medium variant of the *2002 Revision* projects that 3 out of every 4 countries in the less developed regions will be experiencing below-replacement fertility.

This change in assumptions represents the third and final phase in a process of assessment of future trends in fertility. In 1997 the Population Division convened a meeting of experts to review the guidelines for the projection of fertility in countries with below-replacement fertility.[1] As a result of the deliberations of that meeting the fertility of low-fertility countries was maintained below replacement level during the whole projection period in the *1998 Revision*. In 2001, a similar meeting of experts was convened to discuss prospects for countries where fertility had not yet begun to decline or where fertility declines were incipient.[2] Already the *2000 Revision* projected that fertility in those countries would decline more slowly than in the *1998 Revision* and their pace of fertility decline is not projected to be much faster in the *2002 Revision*. Lastly, in 2002 a meeting of experts discussed guidelines on how to project the future fertility of intermediate-fertility countries, that is, those that had already experienced significant fertility decline but had not yet reached levels of fertility below replacement.[3] The projections of fertility in the *2002 Revision* reflect the conclusions reached at that meeting.

A second important change in the *2002 Revision* is that it anticipates a more serious and prolonged impact of the HIV/AIDS epidemic in the most affected countries than previous revisions. The impact of the disease is explicitly modelled for 53 countries, up from the 45 considered in the *2000 Revision*. The dynamics of the epidemic are assumed to remain unchanged until 2010. Thereafter prevalence levels are assumed to decline in a manner consistent with modifications of behaviour that reduce the rates of recruitment into the high risk group as well as the chances of infection among those engaging in high risk behaviour. The resulting HIV prevalence levels remain relatively high until 2010 and then decline, but are still substantial by mid-century.

As a consequence of these changes, the *2002 Revision* projects a lower population in 2050 than the *2000 Revision* did: 8.9 billion instead of 9.3 billion according to the medium variant. About half of the 0.4 billion difference in these projected populations results from an increase in the number of projected deaths, the majority stemming from higher projected levels of HIV

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[1] Below Replacement Fertility, *Population Bulletin of the United Nations*, Special Issue Nos. 40/41, 1999 (United Nations, 2000).

[2] United Nations Workshop on Prospects for Fertility Decline in High Fertility Countries, New York, 9-11 July 2001 (United Nations, ESA/P/WP.167).

[3] Completing the Fertility Transition (United Nations, ESA/P/WP.1/Rev.1).

prevalence. The other half of the difference reflects a reduction in the projected number of births, primarily as a result of lower expected future fertility levels.

The results of the *2002 Revision* confirm key conclusions from previous revisions and provide new insights into the sensitivity of population projections to future trends in fertility and mortality. The main findings of the *2002 Revision* are summarized below.

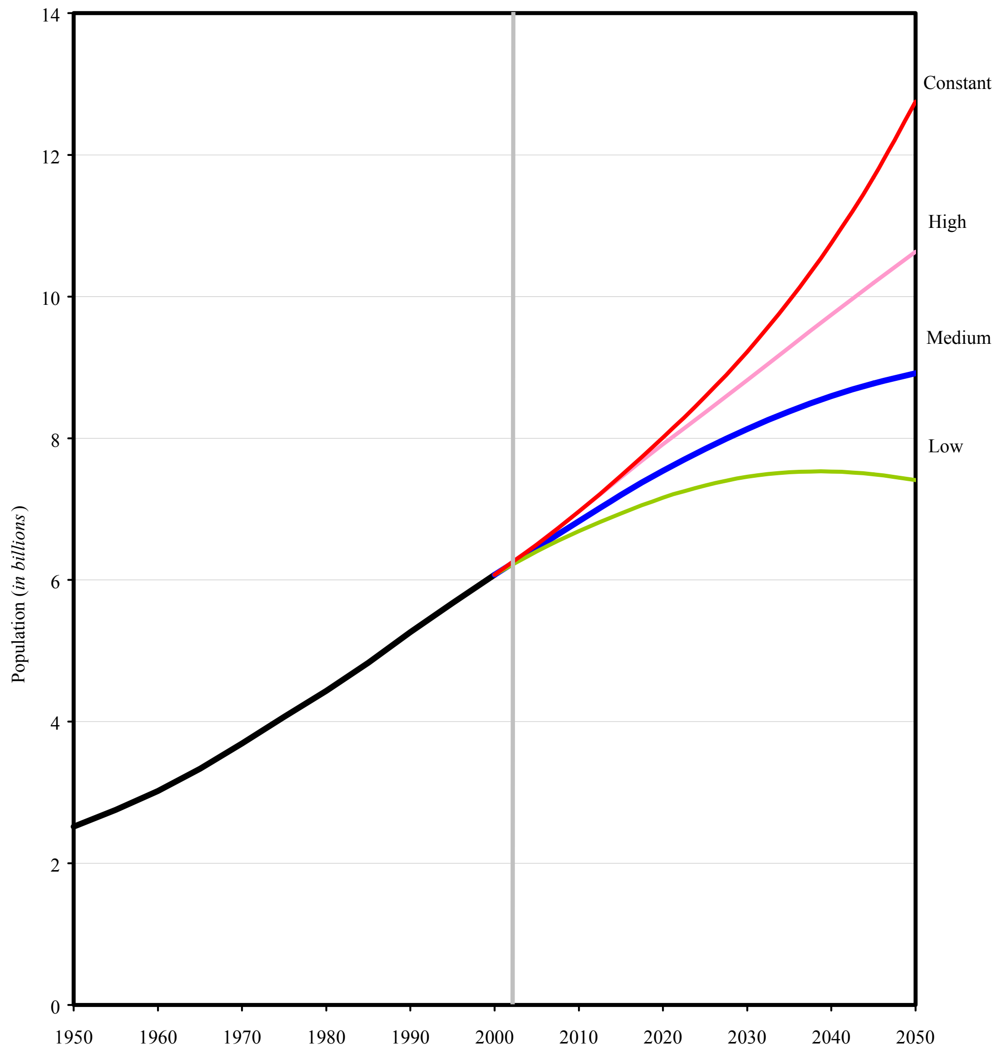
1. Despite the lower fertility levels projected and the increased mortality risks to which some populations will be subject, the population of the world is expected to increase by 2.6 billion during the next 47 years, from 6.3 billion today to 8.9 billion in 2050. However, the realization of these projections is contingent on ensuring that couples have access to family planning and that efforts to arrest the current spread of the HIV/AIDS epidemic are successful in reducing its growth momentum. The potential for considerable population increase remains high. According to the results of the *2002 Revision*, if fertility were to remain constant in all countries at current levels, the total population of the globe could more than double by 2050, reaching 12.8 billion. Even a somewhat slower reduction of fertility than that projected in the medium variant would result in additional billions of people. Thus, if women were to have, on average, about half a child more than according to the medium variant, world population might rise to 10.6 billion in 2050 as projected in the high variant. The low variant, where women have, on average, half a child less than in the medium variant, would result in a 2050 population of 7.4 billion (see figure on following page).

2. World population is currently growing at a rate of 1.2 per cent annually, implying a net addition of 77 million people per year. Six countries account for half of that annual increment: India for 21 per cent; China for 12 per cent; Pakistan for 5 per cent; Bangladesh, Nigeria and the United States of America for 4 per cent each.

3. The increasing diversity of population dynamics among the countries and regions of the world is evident in the results of the *2002 Revision*. Whereas today the population of the more developed regions of the world is rising at an annual rate of 0.25 per cent, that of the less developed regions is increasing nearly six times as fast, at 1.46 per cent, and the subset of the 49 least developed countries is experiencing even more rapid population growth (2.4 per cent per year). Such differences, although somewhat dampened, will persist until 2050. By that time, the population of the more developed regions will have been declining for 20 years, whereas the population of the less developed regions will still be rising at an annual rate of 0.4 per cent. More importantly, the population of the least developed countries will likely be rising at a robust annual rate of over 1.2 per cent in 2045-2050.

4. As a result of these trends, the population of more developed regions, currently at 1.2 billion, is anticipated to change little during the next 50 years. In addition, because fertility levels for most of the developed countries are expected to remain below replacement level during 2000-2050, the populations of 30 developed countries are projected to be smaller by mid-century than today (e.g., 14 per cent smaller in Japan; 22 per cent smaller in Italy, and between 30 and 50 per cent smaller in the cases of Bulgaria, Estonia, Georgia, Latvia, the Russian Federation and Ukraine).

Estimated and projected population of the world by projection variant, 1950-2050



Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2003). *World Population Prospects: The 2002 Revision. Highlights*. New York: United Nations.

5. The population of the less developed regions is projected to rise steadily from 4.9 billion in 2000 to 7.7 billion in 2050 (medium variant). Particularly rapid growth is expected among the least developed countries whose population is projected to rise from 668 million to 1.7 billion despite the fact that their fertility is projected to decline markedly in the future (from 5.1 children per woman today to 2.5 children per woman in 2045-2050). With sustained annual growth rates higher than 2.5 per cent between 2000 and 2050, the populations of Burkina Faso, Mali, Niger, Somalia, Uganda and Yemen are projected to quadruple, passing from 85 million to 369 million in total.

6. Large population increments are expected among the most populous countries even if their fertility levels are projected to be low. Thus, during 2000-2050, eight countries

(India, Pakistan, Nigeria, the United States of America, China, Bangladesh, Ethiopia and the Democratic Republic of Congo, in order of population increment) are expected to account for half of the world's projected population increase.

7. The past 50 years witnessed a remarkable reduction of fertility levels in the less developed regions, with total fertility falling from 6 to 3 children per woman. Over the next 50 years, fertility in the less developed regions is expected to reach replacement level in 2030-2035 and fall below it thereafter. However, average fertility in the less developed regions as a whole is still expected to be slightly above 2 children per woman in 2045-2050, mainly because of the increasing heterogeneity of population dynamics among developing countries. Thus, the 49 least developed countries are expected to have a total fertility of 2.5 children per woman in 2045-2050, well above replacement level. That is, the *2002 Revision* foresees that by mid-century there will still be a significant number of countries where the transition to below-replacement fertility will not be completed.

8. Increasing diversity is also evident with respect to future mortality levels. At the world level, life expectancy at birth is likely to rise from 65 years today to 74 years in 2045-2050. But whereas more developed regions, whose life expectancy today is estimated at 76 years, will see it rise to 82 years, that of less developed regions will remain considerably below, reaching 73 years by mid-century (up from 63 years today). In the group of least developed countries, many of which are highly affected by the HIV/AIDS epidemic, life expectancy today is still below 50 years and is not expected to exceed 67 years by 2050. So, although the gap in life expectancy between the different groups of countries is expected to narrow, major differences in the probabilities of survival will remain evident by mid-century.

9. The *2002 Revision* indicates a worsening of the impact of the HIV/AIDS epidemic in terms of increased morbidity, mortality and population loss. Although the probability of being infected by HIV is assumed to decline significantly in the future (particularly after 2010), the long-term impact of the epidemic remains dire. Over the current decade, the number of excess deaths because of AIDS among the 53 most affected countries is estimated at 46 million and that figure is projected to ascend to 278 million by 2050. Despite the devastating impact of the HIV/AIDS epidemic, the populations of the affected countries are generally expected to be larger by mid-century than today, mainly because most of them maintain high to moderate fertility levels. However, for the seven most affected countries in Southern Africa, where current HIV prevalence is above 20 per cent, the population is projected to increase only slightly, from 74 million in 2000 to 78 million in 2050, and outright reductions in population are projected for Botswana, Lesotho, South Africa and Swaziland.

10. The deeper reductions of fertility projected in the *2002 Revision* result in a faster ageing of the population of developing countries than in previous revisions. Globally, the number of older persons (60 years or over) will nearly triple, increasing from 606 million in 2000 to nearly 1.9 billion by 2050. Whereas 6 of every 10 of those older persons live today in less developed regions, by 2050, 8 of every 10 will do so. An even more marked increase is expected in the number of the oldest-old (80 years or over) at the global level: from 69 million in 2000 to 377 million in 2050. In less developed regions, the rise will be from 32 million to 265 million, again implying that most oldest old will live in less developed countries by 2050.

11. In more developed regions, the population aged 60 or over currently constitutes 19 per cent of the population; by 2050 it will account for 32 per cent of the population. The elderly population in more developed regions has already surpassed the child population (persons aged 0-14) and by 2050 there will be 2 elderly persons for every child. In the less developed regions, the proportion of the population aged 60 or over will rise from 8 per cent in 2000 to close to 20 per cent in 2050.

12. Increases in the median age, the age at which 50 per cent of the population is older and 50 per cent is younger than that age, reflect the ageing of the population. At the world level, the median age rose by scarcely three years between 1950 and 2000, from 23.6 years to 26.4 years, largely because most populations in less developed countries remained young. Over the next 50 years, however, the world's median age will rise by nearly 10 years, to reach 37 years in 2050. Among developed countries, 13 are expected to have a median age of 50 years or more, with Japan, Latvia and Slovenia (each with a median age of about 53 years), and the Czech Republic, Estonia, Italy and Spain (each with a median age of about 52 years) leading the list. In addition, three developing countries (Armenia, the Republic of Korea and Singapore) will also be in that group. At the other end of the spectrum, Angola, Burkina Faso, Mali, Niger, Somalia, Uganda and Yemen expect to have still young populations, with median ages lower than 23 years in 2050.

13. International migration is projected to remain high during the first half of the century. The more developed regions are expected to remain net receivers of international migrants, with an average gain of about 2 million migrants per year over the next 50 years. Averaged over the 2000-2050 period, the main net gainers of international migrants are projected to be the United States (1.1 million annual net migrants), Germany (211 thousand), Canada (173 thousand), the United Kingdom (136 thousand) and Australia (83 thousand), whereas the major net senders are projected to be China (-303 thousand annual net number of migrants), Mexico, (-267 thousand), India (-222 thousand), the Philippines (-184 thousand) and Indonesia (-180 thousand).

ASSUMPTIONS UNDERLYING THE *2002 REVISION*

The *2002 Revision* includes six projection variants. Four differ among themselves with respect to the assumptions made regarding the future course of fertility. The fifth differs with respect to the assumptions made about the future course of mortality, and the sixth differs with respect to the future course of migration.

To describe the different projection variants, the various assumptions made regarding fertility, mortality and international migration are described first.

A. Fertility assumptions

Fertility assumptions are described in terms of the following groups of countries:

1. *High-fertility countries*: Countries that until 2000 had had no fertility reduction or only an incipient decline;

2. *Medium-fertility countries*: Countries where fertility has been declining but whose level was still above 2.1 children per woman in 1995-2000;

3. *Low-fertility countries*: Countries with total fertility at or below 2.1 children per woman in 1995-2000.

Medium-fertility assumptions:

1. Total fertility in high-fertility and medium-fertility countries is assumed to decline following a path derived from models of fertility decline established by the United Nations Population Division on the basis of the past experience of all countries with declining fertility during 1950-2000. The models relate the level of total fertility during a period to the average expected decline in total fertility during the next period. Under the medium variant, whenever the total fertility projected by a model falls below 1.85 children per woman, the value actually used in projecting the population is set to 1.85. That is, 1.85 children per woman represents a floor value below which the total fertility of high and medium-fertility countries is not allowed to drop before 2050. However, it is not necessary for all countries to reach the floor value by 2050. If the model of fertility change used produces a total fertility above 1.85 children per woman for 2045-2050, that value is used in projecting the population.

2. Total fertility in low-fertility countries is generally assumed to remain below 2.1 children per woman during most of the projection period and reach 1.85 children per woman by 2045-2050. For low-fertility countries whose total fertility in 1995-2000 is estimated to be below 1.85 children per woman, projected total fertility often declines further before increasing slowly to reach 1.85 in 2045-2050.

High-fertility assumptions:

Under the high variant, total fertility is projected to remain 0.5 children above the total fertility in the medium variant over most of the projection period. By 2045-2050, total fertility in the high variant is therefore half a child higher than that of the medium variant. That is, countries reaching a total fertility of 1.85 children per woman in the medium variant have a total fertility of 2.35 children per woman in the high variant at the end of the projection period.

Low-fertility assumptions:

Under the low variant, total fertility is projected to remain 0.5 children below the total fertility in the medium variant over most of the projection period. By 2045-2050, total fertility in the low variant is therefore half a child lower than that of the medium variant. That is, countries reaching a total fertility of 1.85 children per woman in the medium variant have a total fertility of 1.35 children per woman in the low variant at the end of the projection period.

Constant-fertility assumption:

For each country, total fertility remains constant at the level estimated for 1995-2000.

B. Mortality assumptions

Normal-mortality assumption:

Mortality is projected on the basis of the models of change of life expectancy produced by the United Nations Population Division. A medium pace of mortality decline is generally used to project future mortality levels. However, for countries highly affected by the HIV/AIDS epidemic, the slow pace of mortality decline has generally been used to project the reduction of general mortality risks not related to HIV/AIDS.

In addition, for the countries highly affected by the HIV/AIDS epidemic, estimates of the impact of HIV/AIDS are made explicitly through assumptions about the future course of the epidemic—that is, by projecting the yearly incidence of HIV infection. The model developed by the UNAIDS Reference Group on Estimates, Modelling and Projections[4] has been used to fit past HIV prevalence estimates obtained from UNAIDS so as to derive the parameters determining the past dynamics of the epidemic. For most countries, the model is fitted assuming that the relevant parameters have remained constant in the past. For projection purposes, the parameters are kept constant until 2010. Thereafter, the parameter PHI, which reflects the rate of recruitment of new individuals into the high-risk or susceptible group, is projected to decline by a third over intervals of increasing length. In addition, the parameter R, which represents the force of infection, is projected to decline by 15 per cent over the same intervals. A reduction in R is based on the assumption that changes in behaviour among those subject to the risk of infection will reduce the chances of transmitting the virus.

[4] Improved methods and assumptions for estimation of the HIV/AIDS epidemic and its impact: Recommendations of the UNAIDS Reference Group on Estimates, Modelling and Projections. *AIDS*, vol. 16, pp. W1-W14 (UNAIDS Reference Group on Estimates, Modelling and Projections, 2002).

Constant-mortality assumption:

For each country, mortality remains constant at the level estimated in 1995-2000.

C. International migration assumptions

Normal-migration assumption:

The future path of international migration is set on the basis of past international migration estimates and an assessment of the policy stance of countries with regard to future international migration flows.

Zero-migration assumption:

For each country, international migration is set to zero for the period 2000-2050.

The table below presents in a schematic way the different assumptions underlying the six projection variants. As shown, the four fertility variants (low, medium, high and constant-fertility) share the same assumptions regarding mortality and international migration. They differ among themselves only with respect to the assumptions regarding fertility. A comparison of their results allows therefore an assessment of the effects that different fertility paths have on other demographic parameters.

In addition to the four fertility variants, a constant-mortality variant and a zero-migration variant have also been prepared. They both have the same fertility assumption (i.e. the medium fertility). Furthermore, the constant-mortality variant has the same international migration assumption as the medium variant. Consequently, the results of the constant-mortality variant can be compared with those of the medium variant to assess the effect that changing mortality has on other demographic parameters. Similarly, the zero-migration variant differs from the medium variant only with respect to the underlying assumption regarding migration. Therefore, the zero-migration variant allows an assessment of the effect that non-zero migration has on other demographic parameters.

PROJECTION VARIANTS IN TERMS OF ASSUMPTIONS FOR FERTILITY, MORTALITY AND INTERNATIONAL MIGRATION

	Assumptions		
Projection variant	*Fertility*	*Mortality*	*International migration*
Low	Low	Normal	Normal
Medium	Medium	Normal	Normal
High	High	Normal	Normal
Constant-fertility	Constant	Normal	Normal
Constant-mortality	Medium	Constant	Normal
Zero-migration	Medium	Normal	Zero

Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2003). *World Population Prospects: The 2002 Revision. Highlights.* New York: United Nations.

Summary of the methodological changes made for the 2002 Revision

The following changes and adjustments were made in the *2002 Revision* in relation to procedures followed in the *2000 Revision*:

1. In the medium variant, the future fertility paths for countries with total fertility above 2.1 children per woman are projected using models derived from the past experience of all countries where fertility has already declined.

2. Countries with current total fertility above 2.1 children per woman are no longer constrained to stop their future fertility decline at 2.1 children per woman. Instead, their fertility levels can continue to decline until they reach 1.85 children per woman, the floor value below which total fertility is not allowed to fall in the medium variant. As in the *2000 Revision*, not all countries need to reach either a total fertility of 2.1 or 1.85 children per woman during the projection period in the medium variant.

3. The total fertility of all low-fertility countries is assumed to converge to 1.85 children per woman by the end of the projection period instead of reaching different target values as in the *2000 Revision*.

4. For all countries, total fertility in the high and low variants is projected to be 0.5 children above and 0.5 children below, respectively, from the total fertility of the medium variant. In the *2000 Revision*, a difference of 0.4 of a child was used in the case of low-fertility countries.

5. The estimation and projection of the impact of HIV/AIDS was modified to incorporate the model developed by the UNAIDS Reference Group on Estimates, Modelling and Projections. Use of the new model allows the formulation of projection hypotheses on the basis of parameters that are meaningful with respect to the dynamics of the epidemic.

تمهيد

يقدم هذا التقرير موجزا تنفيذيا للنتائج التي توصل إليها ''تنقيح عام ٢٠٠٢'' بشأن التقديرات والتوقعات السكانية الرسمية في العالم التي أعدتها شعبة السكان التابعة لإدارة الشؤون الاقتصادية والاجتماعية بالأمانة العامة للأمم المتحدة. وبالإضافة إلى ذلك، يقدم هذا التقرير استعراضا عاما للافتراضات المتعلقة بالخصوبة ومعدل الوفيات والهجرة، التي تستند إليها التوقعات، فضلا عن تقديم موجز للتغيرات والتعديلات التي أدخلت على ''تنقيح عام ٢٠٠٢'' فيما يخص الإجراءات المتبعة في ''تنقيح عام ٢٠٠٠''. ويمثّل ''تنقيح عام ٢٠٠٢'' الجولة الثامنة عشرة للتقديرات والتوقعات الديموغرافية العالمية التي دأبت شعبة السكان على إعدادها منذ سنة ١٩٥٠.

وسترد النتائج الكاملة لـ ''تنقيح عام ٢٠٠٢'' في سلسلة تتكون من ثلاثة مجلدات. وسيتضمن المجلد الأول[١] جداول شاملة تحتوي على المؤشرات الديموغرافية الرئيسية لكل بلد خلال الفترة ١٩٥٠-٢٠٥٠، ويحتوي المجلد الثاني[٢] على توزيع سكان كل بلد حسب العمر ونوع الجنس خلال الفترة ١٩٥٠-٢٠٥٠، أما المجلد الثالث[٣] فسيخصص لتحليل النتائج التي جرى التوصل إليها.

وستوزع البيانات أيضا في شكل رقمي. ويمكن للمستعملين المهتمين شراء قرص حاسوبي مدمج CD-ROM يتضمن النتائج الرئيسية لـ ''تنقيح عام ٢٠٠٢''. ويتوافر بموقع شعبة السكان على الشبكة وصف البيانات التي يحتوي عليها القرص الحاسوبي المدمج واستمارة طلب شراء (انظر العنوان الوارد أدناه).

وشعبة السكان هي المسؤولة عن '' تنقيح عام ٢٠٠٢''. ولقد سهّل من عملية إعداد ''تنقيح عام ٢٠٠٢'' تعاون اللجان الإقليمية والوكالات المتخصصة، وغيرها من هيئات الأمم المتحدة المعنية، مع شعبة السكان. وتُعرب شعبة السكان أيضا عن امتنانها لشعبة الإحصاءات التابعة لإدارة الشؤون الاقتصادية والاجتماعية لتعاونها المستمر.

(١) ''التوقعات السكانية في العالم: تنقيح عام ٢٠٠٢''، المجلد الأول، ''جداول شاملة'' (منشورات الأمم المتحدة، سيصدر عما قريب).

(٢) ''التوقعات السكانية في العالم: تنقيح عام ٢٠٠٢''، المجلد الثاني، ''توزيع سكان العالم حسب نوع الجنس والسن'' (منشورات الأمم المتحدة، سيصدر عما قريب).

(٣) ''التوقعات السكانية في العالم: تنقيح عام ٢٠٠٢''، المجلد الثالث، ''تقرير تحليلي'' (منشورات الأمم المتحدة، سيصدر عما قريب).

ويمكن الوصول إلى نواتج منتقاة من ''تنقيح عام ٢٠٠٢''، فضلا عن معلومات أخرى تتعلق بالسكان، على موقع شعبة السكان على الشبكة العالمية www.unpopulation.org. وللحصول على مزيد من المعلومات عن ''تنقيح عام ٢٠٠٢'' يرجى الاتصال بالعنوان التالي: Mr. Joseph Chamie, Director, Population Division, United Nations, New York, NY 10017, USA (fax: 1 212 963 2147).

موجز تنفيذي

يمثل ''تنقيح عام ٢٠٠٢'' الجولة الثامنة عشرة للتقديرات والتوقعات التي أعدها شعبة السكان التابعة لإدارة الشؤون الاقتصادية والاجتماعية بالأمانة العامة للأمم المتحدة. وتُستخدم هذه التقديرات والتوقعات في كامل منظومة الأمم المتحدة أساسا للأنشطة التي تتطلب معلومات تتعلق بالسكان.

ويشق ''تنقيح عام ٢٠٠٢'' للتقديرات والتوقعات السكانية الرسمية للأمم المتحدة طريقا جديدا من حيث الافتراضات المتعلقة بمستقبل معدلات الخصوبة البشرية وتأثير وباء فيروس نقص المناعة البشرية/الإيدز. وللمرة الأولى، تتوقع شعبة السكان بالأمم المتحدة أن معدلات الخصوبة في المستقبل في غالبية الدول النامية يُرجح أن تنخفض عن ٢,١ طفل لكل امرأة، وهو المعدل الضروري لضمان إحلال السكان على المدى الطويل، عند نقطة ما في القرن الحادي والعشرين. ووفقا للدلالة المستمدة من المتغير المتوسط لـ ''تنقيح عام ٢٠٠٢''، يتوقع بحلول سنة ٢٠٥٠، أن تشهد ثلاثة من كل أربعة بلدان، في المناطق الأقل تقدما، معدلات خصوبة دون مستوى الإحلال.

ويمثل هذا التغير في الافتراضات المرحلة الثالثة والأخيرة في عملية تقييم الاتجاهات المقبلة للخصوبة. وفي سنة ١٩٩٧، عقدت شعبة السكان اجتماعا للخبراء أُسندت إليه مهمة استعراض المبادئ التوجيهية لتوقعات الخصوبة في البلدان التي تنخفض فيها الخصوبة عن مستوى الإحلال(٤). وفي ضوء ما دار من مداولات في ذلك الاجتماع، فإن معدلات الخصوبة في البلدان ذات الخصوبة المنخفضة ظلت دون مستوى الإحلال طوال الفترة المشمولة بالتوقعات في ''تنقيح عام ١٩٩٨''. وفي سنة ٢٠٠١، عُقد اجتماع خبراء مشابه لمناقشة التوقعات في البلدان التي لم تبدأ معدلات خصوبتها بعد في التدني، أو تلك التي لا تزال معدلات تدني خصوبتها في مراحلها الأولى(٥). وقد سبق في ''تنقيح عام ٢٠٠٠'' التوقع بأن تنخفض معدلات الخصوبة في هذه البلدان بوتيرة أبطأ مما كان متوقعا في ''تنقيح عام ١٩٩٨''، كما لا يتوقع لوتيرة تدني معدلات الخصوبة فيها أن تكون أسرع مما هو متوقع في ''تنقيح عام ٢٠٠٢''. وأخيرا، ناقش اجتماع للخبراء عُقد في سنة ٢٠٠٢ المبادئ التوجيهية المتعلقة بكيفية توقع معدلات الخصوبة في المستقبل بالنسبة للبلدان ذات معدلات

(٤) الخصوبة دون مستوى الإحلال، نشرة الأمم المتحدة للسكان، عدد خاص رقم ٤٠/٤١، ١٩٩٩ (الأمم المتحدة، ٢٠٠٠).

(٥) حلقة عمل نظمتها الأمم المتحدة عن توقعات تدني معدلات الخصوبة في البلدان ذات معدلات الخصوبة المرتفعة، نيويورك، ٩-١١ تموز/يوليه ٢٠٠١ (الأمم المتحدة، ESA/P/WP.167).

الخصوبة المتوسطة، أي تلك البلدان التي سبق لها أن شهدت انخفاضا ملحوظا في معدلات الخصوبة، لكنها لم تصل بعد إلى معدل خصوبة دون مستوى الإحلال[٦] وتبين معدلات الخصوبة المتوقعة في "تنقيح عام ٢٠٠٢" الاستنتاجات التي تم التوصل إليها في ذلك الاجتماع.

وثمة تغير ثان مهم يشير إليه "تنقيح عام ٢٠٠٢"، يتمثل في أن هذا التنقيح يتوقع آثارا أكثر خطورة وأطول زمنا لوباء فيروس نقص المناعة البشرية/الإيدز في معظم البلدان المتضررة، عما كان متوقعا في التنقيحات السابقة. وقد وُضعت توقعات لآثار المرض بشكل محدد بالنسبة لـ ٥٣ بلدا، في حين أن عدد البلدان التي وُضعت توقعات لها في تنقيح عام ٢٠٠٠ لم يتجاوز ٤٥ بلدا. ويُفترض أنه لن يطرأ تغيير على ديناميات الوباء حتى سنة ٢٠١٠. ومن المفترض بعد ذلك أن تبدأ معدلات انتشار الوباء في الانخفاض، وذلك بشكل يواكب التغييرات السلوكية التي تفضي إلى تخفيض أعداد الأفراد الذين يصبحون ضمن الفئة الأشد تعرضا للخطر، والتي تحد أيضا من فرص التعرض للإصابة بين صفوف الأشخاص الذين يمارسون أنماطا سلوكية تجعلهم أكثر تعرضا للخطر. وتظل معدلات الانتشار الناجمة عن فيروس نقص المناعة البشرية مرتفعة نسبيا حتى سنة ٢٠١٠، ثم تأخذ في التدني، لكنها ستظل مرتفعة بشكل ملموس حتى منتصف القرن.

ونتيجة لهذه التغيرات، يتوقع "تنقيح عام ٢٠٠٢" عددا أصغر من السكان في سنة ٢٠٥٠، عما كان عليه الحال في "تنقيح عام ٢٠٠٢": يبلغ العدد الذي يتوقعه "تنقيح عام ٢٠٠٢"، ٨,٩ بليون، نسمة في حين أن التوقع في "تنقيح عام ٢٠٠٢" هو ٩,٣ بليون نسمة، وذلك وفقا للمتغير المتوسط. ويعود نصف الفرق البالغ ٠,٤ بليون نسمة، في نتائج هذين التوقعين لأعداد السكان، إلى زيادة في عدد الوفيات المتوقعة، والتي يُعزى غالبيتها إلى معدلات متوقعة أعلى لانتشار فيروس نقص المناعة البشرية. أما النصف الآخر لهذا الفرق فيمثل انعكاسا للانخفاض المتوقع في عدد المواليد، وذلك في المقام الأول نتيجة لتوقع معدلات خصوبة أكثر انخفاضا في المستقبل.

وتؤكد النتائج التي توصل إليها "تنقيح عام ٢٠٠٢" الاستنتاجات الرئيسية التي خلُصت إليها التنقيحات السابقة، كما توفر هذه النتائج نظرة ثاقبة جديدة لمدى تأثر التوقعات السكانية بالاتجاهات المقبلة في معدلات الخصوبة والوفيات. ويرد أدناه موجز النتائج الرئيسية لـ "تنقيح عام ٢٠٠٢".

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(٦) إكمال عملية التغيير في معدلات الخصوبة (الأمم المتحدة، ESA/P/WP.1/Rev.1).

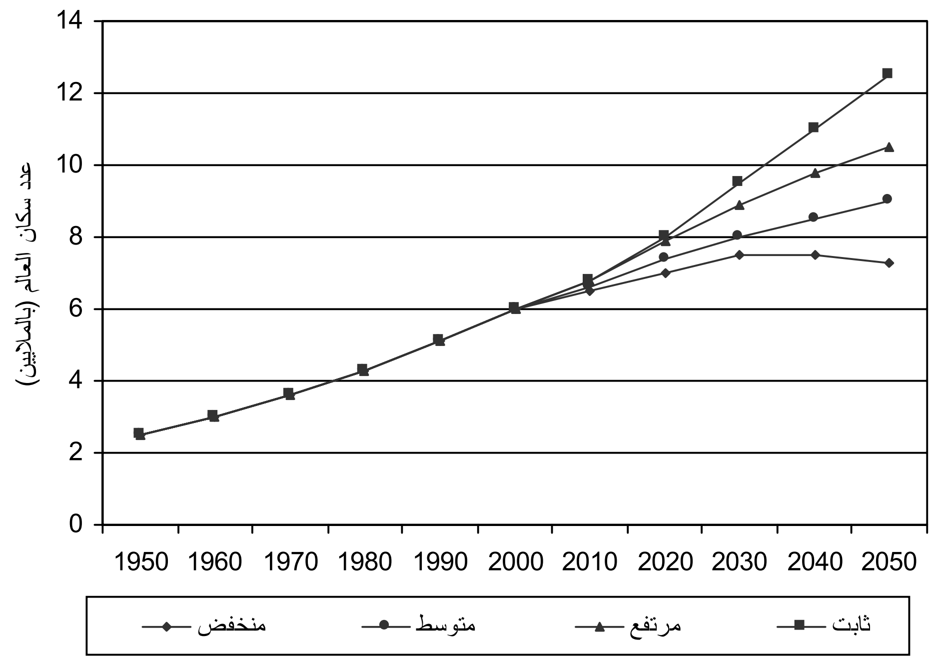
١ - على الرغم من معدلات الخصوبة المنخفضة المتوقعة وتزايد مخاطر الوفيات التي سيكون بعض السكان عرضة لها، يتوقع أن يزداد عدد سكان العالم بمقدار ٢,٦ بليون نسمة خلال فترة السنوات الـ ٤٧ القادمة، وذلك من العدد الحالي البالغ ٦,٣ بليون نسمة إلى ٨,٩ بليون نسمة بحلول سنة ٢٠٥٠. بيد أن تحقق هذه التوقعات يعتمد على ضمان إتاحة فرص تنظيم الأسرة للأزواج، ونجاح الجهود المبذولة لوقف معدلات الانتشار الحالية لوباء فيروس نقص المناعة البشرية/الإيدز في الحد من استشرائه. وتظل إمكانية حدوث زيادة كبيرة في عدد السكان مرتفعة. ووفقا للنتائج المتوصل إليها في ''تنقيح عام ٢٠٠٢''، إذا ظلت معدلات الخصوبة ثابتة في جميع البلدان عند مستوياتها الحالية، فقد يصل إجمالي عدد سكان العالم إلى ما يزيد على الضعف بحلول سنة ٢٠٥٠، بحيث يبلغ ١٢,٨ بليون نسمة. وحتى في حالة انخفاض معدل الخصوبة أبطأ من المعدل المتوقع، في إطار المتغير المتوسط، فإن ذلك سيفضي إلى زيادة بضعة بلايين أخرى من السكان. ومن ثم، إذا ما كان معدل الولادة لكل امرأة في المتوسط يزيد بمقدار نصف طفل عن المعدل المتوقع وفقا للمتغير المتوسط، قد يرتفع عدد سكان العالم إلى ١٠,٦ بليون نسمة في سنة ٢٠٥٠ كما هو متوقع في إطار المتغير المرتفع. أما في حالة المتغير المنخفض، حيث يقل معدل المواليد لكل امرأة في المتوسط بواقع نصف طفل عما هو عليه في إطار المتغير المتوسط، فإن عدد سكان العالم سيبلغ ٧,٤ بليون نسمة في سنة ٢٠٥٠ (انظر الشكل البياني في الصفحة التالية).

٢ - وينمو عدد سكان العالم حاليا بمعدل ١,٢ في المائة سنويا، ويعني ذلك زيادة صافية إضافية مقدارها ٧٧ مليون شخص في السنة. وتستأثر ستة بلدان بنصف هذه الزيادة السنوية على النحو التالي: الهند: ٢١ في المائة؛ الصين: ١٢ في المائة؛ باكستان: ٥ في المائة؛ و ٤ في المائة لكل من بنغلاديش ونيجيريا والولايات المتحدة الأمريكية.

٣ - ويتضح في نتائج ''تنقيح عام ٢٠٠٢'' التباين المتزايد في ديناميات السكان بين بلدان ومناطق العالم. وفي الوقت الذي يتزايد فيه حاليا سكان المناطق الأكثر تقدما في العالم بمعدل سنوي يبلغ ٠,٢٥ في المائة، فإن معدل التزايد في البلدان الأقل تقدما أسرع بستة أمثال ذلك تقريبا، بمعدل ١,٤٦ في المائة، وتشهد الفئة الفرعية لأقل البلدان نموا وعددها ٤٩ بلدا تزايدا سكانيا يفوق غيرها من البلدان (٢,٤ في المائة سنويا). وستظل هذه الفروق قائمة، وإن تضاءلت نوعا ما، حتى سنة ٢٠٥٠. وبحلول ذلك الوقت، سيكون عدد سكان المناطق الأكثر تقدما قد شهد تناقصا على امتداد ٢٠ سنة، في حين أن عدد السكان في المناطق الأقل تقدما سيظل يشهد زيادة بنسبة سنوية معدلها ٠,٤ في المائة. وهناك أمر أكثر أهمية يتمثل في أن عدد السكان في أقل البلدان نموا يرجح أن يتزايد بمعدل سنوي عالٍ يفوق ١,٢ في المائة خلال الفترة ٢٠٤٥-٢٠٥٠.

٤ – ونتيجة لهذه الاتجاهات، فإن عدد سكان المناطق الأكثر تقدما، الذي يبلغ حاليا ١,٢ بليون نسمة، يتوقع له أن يشهد تغيرات طفيفة خلال فترة الـ ٥٠ سنة المقبلة. وفضلا عن ذلك، نظرا لأن معدلات الخصوبة في معظم البلدان المتقدمة النمو يتوقع لها أن تظل دون مستوى الإحلال خلال الفترة ٢٠٠٠–٢٠٥٠، يتوقع لأعداد السكان في ٣٠ بلدا متقدم النمو أن تقل بحلول منتصف القرن عما هي عليه الآن (على سبيل المثال، سيقل المعدل في اليابان بنسبة ١٤ في المائة؛ وسيقل المعدل في إيطاليا بنسبة ٢٢ في المائة، وسيتراوح المعدل بنسب تقل عن ٣٠ و ٥٠ في المائة في الاتحاد الروسي، وأوكرانيا، واستونيا، وبلغاريا، وجورجيا، ولاتفيا.

عدد سكان العالم المقدر والمتوقع حسب المتغير المستخدم في حساب التوقع للفترة ١٩٥٠–٢٠٥٠



المصدر: شعبة السكان التابعة لإدارة الشؤون الاقتصادية والاجتماعية بالأمانة العامة للأمم المتحدة (٢٠٠٣). "التوقعات السكانية في العالم: تنقيح عام ٢٠٠٢. الملامح الرئيسية" نيويورك، الأمم المتحدة.

٥ – ويتوقع لأعداد السكان في المناطق الأقل تقدما أن ترتفع بشكل مطرد من ٤.٩ بليون نسمة في سنة ٢٠٠٠ إلى ٧,٧ بليون نسمة في سنة ٢٠٥٠ (المتغير المتوسط). ويتوقع بوجه خاص حدوث نمو سريع في أقل البلدان نموا، إذ يتوقع أن يرتفع عدد سكان هذه البلدان من ٦٦٨ مليون نسمة إلى ١,٧ بليون نسمة، بالرغم من توقع حدوث انخفاض ملحوظ في معدلات هذه البلدان في المستقبل (من ٥,١ طفل لكل امرأة في الوقت الحالي إلى

٢,٥ طفل لكل امرأة خلال الفترة ٢٠٤٥-٢٠٥٠). ومع استمرار معدلات نمو سنوية تزيد على ٢,٥ في المائة بين سنتي ٢٠٠٠ و ٢٠٥٠، يتوقع أن تتضاعف أعداد السكان في أوغندا، وبوركينا فاسو، والصومال، ومالي، والنيجر، واليمن، أربع مرات، وذلك من ٨٥ مليونا إلى ٣٦٩ مليونا إجمالا.

٦ - ويتوقع حدوث زيادات كبيرة في أعداد السكان في البلدان الأكثر ازدحاما بالسكان، حتى مع توقع انخفاض معدلات خصوبتها. ومن ثم، فإنه خلال الفترة ٢٠٠٠-٢٠٥٠، يتوقع لثمانية بلدان (الهند، وباكستان، ونيجيريا، والولايات المتحدة الأمريكية، والصين، وبنغلاديش، وإثيوبيا، وجمهورية الكونغو الديمقراطية، مرتبة بحسب مستوى الزيادة السكانية) أن تمثّل أكثر من نصف الزيادة المتوقعة في أعداد سكان العالم.

٧ - وشهدت الخمسون سنة الماضية انخفاضا ملحوظا في معدلات الخصوبة في المناطق الأقل تقدما، وذلك بانخفاض معدل الخصوبة العام من ٦ إلى ٣ أطفال لكل امرأة. ويتوقع خلال الخمسين سنة القادمة أن تصل معدلات الخصوبة في المناطق الأقل تقدما إلى مستوى الإحلال خلال الفترة ٢٠٣٠-٢٠٣٥، ثم تنخفض عن ذلك بعدئذٍ. غير أن متوسط معدل الخصوبة في المناطق الأقل تقدما ككل، لا يزال يُتوقع له أن يكون أعلى بقليل من طفلين لكل امرأة خلال الفترة ٢٠٤٥-٢٠٥٠، ويعود ذلك بشكل رئيسي إلى تزايد التباين في ديناميات السكان فيما بين البلدان النامية. وهكذا، فإنه يتوقع أن يبلغ معدل الخصوبة الإجمالي لأقل البلدان نموا وعددها ٤٩ بلدا، ٢,٥ طفل لكل امرأة خلال الفترة ٢٠٤٥-٢٠٥٠، أي فوق مستوى الإحلال بكثير. ويعني ذلك أنه وفقا لتوقعات "تنقيح عام ٢٠٠٢"، سيظل هناك عدد ملحوظ من البلدان التي لم تكمل الانتقال إلى معدلات خصوبة دون مستوى الإحلال بحلول منتصف القرن.

٨ - ويتضح التنوع المتزايد أيضا فيما يتعلق بمعدلات الوفيات المقبلة. وعلى الصعيد العالمي، يرجَّح أن يرتفع العمر المتوقع عند الولادة من ٦٥ سنة حاليا إلى ٧٤ سنة في الفترة ٢٠٤٥-٢٠٥٠. لكن في حين ستشهد المناطق الأكثر تقدما في النمو، التي يقدَّر العمر المتوقع عند الولادة فيها حاليا بـ ٧٦ سنة، ارتفاعا في هذا العمر المتوقع إلى ٨٢ سنة، سيظل العمر المتوقع في المناطق الأقل تقدما منخفضا انخفاضا ذا شأن فيصل إلى ٧٣ سنة بحلول منتصف القرن (مرتفعا بذلك عن معدله الحالي وهو ٦٣ سنة). وفي مجموعة أقل البلدان نموا التي يتضرر الكثير منها من وباء فيروس نقص المناعة البشرية/متلازمة نقص المناعة المكتسب (الإيدز)، ما زال متوسط العمر المتوقع عند الولادة حاليا أقل من ٥٠ سنة ولا يُتوقع أن يتجاوز ٦٧ سنة بحلول عام ٢٠٥٠. وهكذا، فبالرغم من أنه يتوقَّع أن تضيق الفجوة في

العمر المتوقع عند الولادة بين مختلف مجموعات البلدان فستظل الاختلافات الرئيسية في احتمالات البقاء على قيد الحياة واضحة بحلول منتصف القرن.

٩ - ويشير ''تنقيح عام ٢٠٠٢'' إلى ازدياد أثر وباء فيروس نقص المناعة البشرية/الإيدز سوءا من حيث زيادة معدلات الإصابة بالمرض والوفيات والنقصان في عدد السكان. وبالرغم من أنه يُفترض أن ينخفض احتمال الإصابة بفيروس نقص المناعة البشرية انخفاضا كبيرا في المستقبل (ولا سيما بعد عام ٢٠١٠)، فإن الأثر الطويل الأجل للوباء ما زال رهيبا. وفي غضون العقد الحالي يُقدَّر عدد الوفيات الزائدة بسبب الإيدز فيما بين أكثر البلدان المتضررة، وعددها ٥٣ بلدا، بمقدار ٤٦ مليون حالة، كما يُتوقع أن يزداد هذا الرقم إلى ٢٧٨ مليون حالة بحلول عام ٢٠٥٠. وبالرغم من الأثر المدمِّر لوباء فيروس نقص المناعة البشرية/الإيدز، يُتوقع أن يزداد عدد سكان البلدان المتضررة عموما بحلول منتصف القرن عما هم عليه حاليا، ويرجع هذا أساسا إلى أن معظمها يحتفظ بمعدلات خصوبة متوسطة. بيد أنه فيما يتعلق بأكثر البلدان المتضررة السبعة في الجنوب الأفريقي، حيث تفوق نسبة انتشار فيروس نقص المناعة البشرية الحالية ٢٠ في المائة، يتوقع أن يزداد عدد السكان زيادة طفيفة فحسب، من ٧٤ مليون نسمة في عام ٢٠٠٠ إلى ٧٨ مليون نسمة في عام ٢٠٥٠، ويتوقع أن يحدث انخفاض إجمالي في عدد السكان في بوتسوانا وجنوب أفريقيا وسوازيلند وليسوتو.

١٠ - ويترتب على الانخفاض الكبير في الخصوبة المسقط في ''تنقيح عام ٢٠٠٢'' زيادة شيخوخة السكان في البلدان النامية عما كان عليه الحال في التنقيحات السابقة. وعلى الصعيد العالمي، سيصل عدد كبار السن (٦٠ سنة أو أكثر) إلى ثلاثة أمثاله تقريبا، فيزداد من ٦٠٦ ملايين في عام ٢٠٠٠ إلى قرابة ١,٩ بليون نسمة بحلول عام ٢٠٥٠. وفي حين أن ٦ من كل ١٠ من هؤلاء الأشخاص الكبار السن يعيشون في مناطق أقل تقدما، فإن ٨ من كل ١٠ سيعيشون في تلك المناطق بحلول عام ٢٠٥٠. بل إنه يتوقع أن تحدث زيادة ملحوظة بصورة كبيرة في عدد الأشخاص الأكبر سنا (٨٠ سنة وأكثر) على الصعيد العالمي: من ٦٩ مليون نسمة في عام ٢٠٠٠ إلى ٣٧٧ مليون نسمة في عام ٢٠٠٥. وفي المناطق الأقل تقدما، سيزداد العدد من ٣٢ مليون نسمة إلى ٢٦٥ مليون نسمة، مما يعني مرة أخرى أن معظم أكبر الأشخاص سنا سيعيشون في البلدان الأقل تقدما بحلول عام ٢٠٥٠.

١١ - وفي المناطق الأكثر تقدما في النمو، يشكل السكان الذين يبلغ عمرهم ٦٠ سنة أو أكثر ١٩ في المائة من السكان حاليا؛ وبحلول عام ٢٠٥٠ سيمثلون ٣٢ في المائة من السكان. وقد تجاوز عدد السكان من كبار السن في معظم المناطق المتقدمة النمو فعلا عدد

الأطفال (الأشخاص الذين يتراوح عمرهم من صفر إلى ١٤ سنة)، وبحلول عام ٢٠٥٠ سيكون هناك شخصان من كبار السن مقابل كل طفل واحد. وفي المناطق الأقل تقدما، ستزداد نسبة السكان البالغ عمرهم ٦٠ سنة أو أكثر من ٨ في المائة في عام ٢٠٠٠ إلى قرابة ٢٠ في المائة في عام ٢٠٥٠.

١٢ - والزيادات في العمر المتوسط، أي العمر الذي يزيد عنه ٥٠ في المائة من السكان ويقل عنه ٥٠ في المائة أخرى منهم، تبيِّن شيخوخة السكان. وعلى الصعيد العالمي، ارتفع العمر المتوسط ثلاث سنوات بالكاد بين عامَي ١٩٥٠ و ٢٠٠٠، أي من ٢٣,٦ إلى ٢٦,٤ سنة، ويرجع هذا بصورة كبيرة إلى أن معظم السكان في البلدان الأقل تقدما ما زالوا في طور الشباب. وفي غضون السنوات الخمسين القادمة، مع هذا، سيزداد العمر المتوسط في العالم بقرابة ١٠ سنوات بحيث يصل إلى ٣٧ سنة في عام ٢٠٥٠. وفيما بين البلدان المتقدمة النمو، يتوقع أن يصل العمر المتوسط في ١٣ منها إلى ٥٠ سنة أو أكثر، وأن تتصدر القائمة سلوفينيا ولاتفيا واليابان (حيث يبلغ العمر المتوسط في كل منها حوالي ٥٣ سنة) وإسبانيا وإستونيا وإيطاليا والجمهورية التشيكية (حيث يبلغ العمر المتوسط في كل منها حوالي ٥٢ سنة). وبالإضافة إلى ذلك، ستنضم ثلاثة بلدان نامية (أرمينيا، جمهورية كوريا، سنغافورة) أيضا إلى تلك المجموعة. وفي الطرف الآخر من النطاق، يتوقع أن يظل لدى أنغولا وأوغندا وبوركينا فاسو والصومال ومالي والنيجر واليمن سكان في طور الشباب، وأن يقل العمر المتوسط فيها عن ٢٣ سنة في عام ٢٠٥٠.

١٣ - ويتوقع أن يظل معدل الهجرة الدولية مرتفعا خلال النصف الأول من القرن. ويتوقع أن تظل المناطق الأكثر تقدما في النمو مستقبِلة صافية للمهاجرين الدوليين وأن تحقق مكاسب متوسطها حوالي مليوني مهاجر سنويا خلال السنوات الخمسين القادمة. وبحساب المتوسطات في غضون الفترة ٢٠٠٠-٢٠٥٠، يتوقع أن تكون البلدان التي تحقق مكاسب صافية من المهاجرين الدوليين هي: الولايات المتحدة (١,١ مليون مهاجر صافٍ سنويا) وألمانيا (٠٠٠ ٢١١ مهاجر) وكندا (٠٠٠ ١٧٣ مهاجر) والمملكة المتحدة (٠٠٠ ١٣٦ مهاجر) وأستراليا (٠٠٠ ٨٣ مهاجر)، في حين يتوقع أن تكون البلدان المرسِلة الصافية هي: الصين (-٠٠٠ ٣٠٣ مهاجر صافٍ سنويا) والمكسيك (-٠٠٠ ٢٦٧ مهاجر) والهند (-٠٠٠ ٢٢٢ مهاجر) والفلبين (-٠٠٠ ١٨٤ مهاجر) وإندونيسيا (-٠٠٠ ١٨٠ مهاجر).

الافتراضات التي يرتكز عليها تنقيح عام ٢٠٠٢

يشمل ''تنقيح عام ٢٠٠٢'' ستة متغيرات للإسقاطات. وتختلف أربعة متغيرات فيما بينها من حيث الافتراضات المتعلقة بمسار الخصوبة المقبل. ويختلف المتغير الخامس فيما يتعلق بالافتراضات بشأن المسار المقبل لمعدل الوفيات، ويختلف المتغير السادس فيما يتعلق بالمسار المقبل للهجرة.

ولبيان مختلف المتغيرات المستخدمة في الإسقاطات، تبيَّن أولا مختلف الافتراضات المتعلقة بالخصوبة ومعدل الوفيات والهجرة الدولية.

ألف – الافتراضات المتعلقة بالخصوبة

تبيِّن الافتراضات المتعلقة بالخصوبة من حيث مجموعات البلدان التالية:

'١' البلدان ذات الخصوبة المرتفعة: البلدان التي لم يحدث فيها حتى عام ٢٠٠٠ أي انخفاض في معدل الخصوبة أو حدث فيها انخفاض أولي فحسب؛

'٢' البلدان ذات الخصوبة المتوسطة: البلدان التي تأخذ فيها معدلات الخصوبة في الانخفاض ولكن ما زال معدلها أكثر من ٢,١ طفل لكل امرأة في الفترة ١٩٩٥-٢٠٠٠؛

'٣' البلدان ذات الخصوبة المنخفضة: البلدان التي يبلغ معدل مجموع الخصوبة فيها ٢,١ طفل لكل امرأة أو أقل في الفترة ١٩٩٥-٢٠٠٠.

الافتراضات المتعلقة بمعدل الخصوبة المتوسط

١ – يفترض أن ينخفض مجموع معدل الخصوبة في البلدان ذات معدلات الخصوبة المرتفعة والمتوسطة، وذلك بأن يتبع مسارا مشتقا من نماذج انخفاض الخصوبة التي وضعتها شعبة السكان بالأمم المتحدة استنادا إلى الخبرات الماضية لجميع البلدان ذات معدلات الخصوبة الآخذة في الانخفاض خلال الفترة ١٩٥٠-٢٠٠٠. وتربط النماذج مستوى معدل الخصوبة الإجمالي خلال فترة بعينها بمتوسط الانخفاض المتوقع في معدل الخصوبة الإجمالي خلال الفترة المقبلة. وفي إطار المتغير المتوسط، عندما ينخفض معدل الخصوبة الإجمالي المسقط وفقا لأحد النماذج عن ١,٨٥ طفل لكل امرأة فإن القيمة المستخدمة فعلا في إسقاط السكان تحدَّد عند ١,٨٥ في المائة. أي أن ١,٨٥ طفل لكل امرأة يمثل القيمة الدنيا التي لا يُسمح بالانخفاض عنها قبل عام ٢٠٥٠ فيما يتعلق بمعدل خصوبة الإجمالي في البلدان ذات الخصوبة المرتفعة والمتوسطة. بيد أنه ليس من الضروري أن تصل جميع البلدان

إلى القيمة الدنيا بحلول عام ٢٠٥٠. وإذا نتج عن نموذج تغيُّر معدل الخصوبة معدل خصوبة إجمالي يتجاوز ١,٨٥ طفل لكل امرأة في الفترة ٢٠٤٥–٢٠٥٠، فإن تلك القيمة تستخدم في حساب إسقاطات السكان.

٢ - ويُفترض عموما أن يظل معدل الخصوبة الإجمالي في البلدان ذات الخصوبة المنخفضة أقل من ٢,١ طفل لكل امرأة خلال معظم الفترة المشمولة بالإسقاطات وأن يصل إلى ١,٨٥ طفل لكل امرأة بحلول الفترة ٢٠٤٥–٢٠٥٠. وفيما يتعلق بالبلدان ذات الخصوبة المنخفضة التي يُقدر معدل الخصوبة الإجمالي بها في الفترة ١٩٩٥–٢٠٠٠ بأقل من ١,٨٥ طفل لكل امرأة، يزداد في معظم الأحيان انخفاض معدل الخصوبة الإجمالي المسقط قبل أن يزداد ببطء حتى يصل إلى ١,٨٥ في الفترة ٢٠٤٥–٢٠٥٠.

الافتراضات المتعلقة بمعدل الخصوبة المرتفع

في إطار المتغير المرتفع يتوقع أن يظل مجموع معدل الخصوبة ٠,٥ طفل أكثر من معدل الخصوبة الإجمالي في المتغير المتوسط خلال معظم الفترة المشمولة بالإسقاطات. وبحلول الفترة ٢٠٤٥–٢٠٥٠، سيكون معدل الخصوبة الإجمالي في إطار المتغير المرتفع لهذا السبب نصف طفل أكثر من معدل المتغير المتوسط. أي أن البلدان التي تصل إلى معدل خصوبة إجمالي قدره ١,٨٥ طفل لكل امرأة في إطار المتغير المتوسط سيكون لديها معدل خصوبة إجمالي قدره ٢,٣٥ طفل لكل امرأة في إطار المتغير المرتفع في نهاية الفترة المشمولة بالإسقاطات.

الإسقاطات المتعلقة بمعدل الخصوبة المنخفض

في إطار المتغير المنخفض، يتوقع أن يظل معدل الخصوبة الإجمالي ٠,٥ طفل أقل من معدل الخصوبة الإجمالي في إطار المتغير المتوسط خلال معظم الفترة المشمولة بالإسقاطات. وبحلول الفترة ٢٠٤٥–٢٠٥٠، سيكون معدل الخصوبة الإجمالي في إطار المتغير المنخفض لهذا السبب نصف طفل أقل من معدل المتغير المتوسط. أي أن البلدان التي تصل إلى معدل خصوبة إجمالي قدره ١,٨٥ طفل لكل امرأة في إطار المتغير المتوسط سيكون لديها معدل خصوبة إجمالي قدره ١,٣٥ طفل لكل امرأة في إطار المتغير المنخفض في نهاية الفترة المشمولة بالإسقاطات.

الافتراض المتعلق بمعدل الخصوبة الثابت

بالنسبة لكل بلد، يظل معدل الخصوبة الإجمالي ثابتا عند المعدل المقدر للفترة ١٩٩٥–٢٠٠٠.

باء – الافتراضات المتعلقة بمعدل الوفيات

الافتراض المتعلق بمعدل الوفيات العادي

يُتوقع معدل الوفيات استنادا إلى نماذج تغيُّر العمر المتوقع عند الولادة التي أعدها شعبة السكان بالأمم المتحدة. ويُستخدم معدل متوسط لانخفاض معدل الوفيات عموما في توقع معدلات الوفيات المقبلة. بيد أنه فيما يتعلق بالبلدان المتضررة بصورة كبيرة من وباء فيروس نقص المناعة البشرية/الإيدز استُخدم معدل انخفاض الوفيات البطيء عموما لتوقُّع انخفاض أخطار معدل الوفيات عموما غير المتصلة بفيروس نقص المناعة البشرية/الإيدز.

وبالإضافة إلى ذلك، وفيما يتعلق بالبلدان المتضررة بصورة كبيرة من فيروس نقص المناعة البشرية/الإيدز، تُعد تقديرات أثر الوباء بوضوح من خلال افتراضات تتعلق بالمسار المقبل للوباء، أي أنه بإسقاط معدل سنوي للإصابة بفيروس نقص المناعة البشرية. فقد استخدم النموذج الذي وضعه فريق الإحالة المعني بالتقديرات ووضع النماذج والإسقاطات التابع لبرنامج الأمم المتحدة المشترك المعني بفيروس نقص المناعة البشرية/الإيدز[٧] كي يلائم تقديرات انتشار فيروس نقص المناعة البشرية التي جرى الحصول عليها من برنامج الأمم المتحدة المشترك المعني بفيروس نقص المناعة البشرية/الإيدز بغية استقاء المحدِّدات التي تحدد الديناميات الماضية للوباء. وفيما يتعلق بمعظم البلدان، يكيَّف النموذج بافتراض أن المحدِّدات ذات الصلة قد ظلت ثابتة في الماضي. ولأغراض الإسقاطات تظل المحدِّدات ثابتة حتى عام ٢٠١٠. وفيما بعد، يتوقَّع أن ينخفض المحدِّد المتعلق بنسبة الانتشار المرتفعة للوباء PHI، الذي يبين معدل ضم أفراد جدد إلى المجموعات المعرضة لخطر كبير أو السريعة التأثر، بواقع الثلث في غضون فترات ذات طول متزايد. وبالإضافة إلى ذلك، يتوقع أن ينخفض المحدِّد R، الذي يمثل شدة الإصابة، بواقع ١٥ في المائة في غضون الفترات نفسها. ويستند الانخفاض في المحدِّد المتعلق بشدة الإصابة إلى افتراض أن التغيرات في سلوك الأشخاص المعرضين لخطر الإصابة ستقلل من فرص انتقال الفيروس.

الافتراض المتعلق بمعدل الوفيات الثابت

بالنسبة لكل بلد، تظل معدلات الوفيات ثابتة عند المستوى المقدر في الفترة ١٩٩٥–٢٠٠٠.

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(٧) أساليب وافتراضات محسَّنة للتقديرات المتعلقة بوباء فيروس نقص المناعة البشرية/الإيدز وآثاره: توصيات فريق الإحالة المعني بالتقديرات ووضع النماذج والإسقاطات التابع لبرنامج الأمم المتحدة المشترك المعني بفيروس نقص المناعة البشرية/الإيدز، الإيدز، المجلد ١٦، ص W1-W14 من الأصل الانكليزي، (فريق الإحالة المعني بالتقديرات ووضع النماذج والإسقاطات التابع لبرنامج الأمم المتحدة المشترك المعني بفيروس نقص المناعة البشرية/الإيدز، ٢٠٠٢).

جيم – الافتراضات المتعلقة بالهجرة الدولية

الافتراض المتعلق بالهجرة العادية

يحدَّد المسار المقبل للهجرة الدولية استنادا إلى تقديرات الهجرة الدولية السابقة وإلى تقييم لموقف سياسات البلدان تجاه تدفقات الهجرة الدولية المقبلة.

الافتراض المتعلق بمعدل الهجرة الصفري

بالنسبة لكل بلد، يُحدَّد معدل الهجرة الدولية عند صفر للفترة ٢٠٠٠–٢٠٥٠.

ويقدم الجدول الوارد أدناه بطريقة تخطيطية الافتراضات المختلفة التي ترتكز إليها متغيرات الإسقاطات الستة. وكما هو مبين، فإن المتغيرات الأربعة لمعدل الخصوبة (الخصوبة المنخفضة والمتوسطة والمرتفعة والثابتة) تشترك في نفس الافتراضات فيما يتعلق بمعدل الوفيات والهجرة الدولية. ولا تختلف فيما بينها إلا فيما يتعلق بالافتراضات بشأن الخصوبة. ولذا، فإن مقارنة نتائجها تتيح إجراء تقييم لآثار مختلف مسارات الخصوبة على المحدِّدات الديموغرافية الأخرى.

وبالإضافة إلى المتغيرات الأربعة لمعدل الخصوبة، أعِد متغير بمعدل وفيات ثابت ومتغير هجرة صفري أيضا. ويرتكز المتغيران على نفس الافتراض المتعلق بالخصوبة (أي الخصوبة المتوسطة). وعلاوة على ذلك، فإن متغير معدل الوفيات الثابت يستند إلى نفس الافتراض المتعلق بالهجرة الدولية مثله مثل المتغير المتوسط. وبناء على ذلك، يمكن مقارنة نتائج متغير معدل الوفيات الثابت بنتائج المتغير المتوسط بغية تقييم أثر تغير معدل الوفيات على المحدِّدات الديموغرافية الأخرى. ولا يختلف متغير الهجرة الصفري أيضا عن المتغير المتوسط إلا فيتعلق بالافتراض بشأن الهجرة. ولذا، يتيح متغير الهجرة الصفري إجراء تقييم لأثر الهجرة غير الصفرية على المحدِّدات الديمغرافية الأخرى.

المتغيرات المستخدمة في الإسقاطات من حيث الافتراضات المتعلقة بمعدلات الخصوبة والوفيات والهجرة

المتغير المستخدم في الإسقاطات	الافتراضات		
	معدل الخصوبة	معدل الوفيات	معدل الهجرة الدولية
منخفض	منخفض	عادي	عادي
متوسط	متوسط	عادي	عادي
مرتفع	مرتفع	عادي	عادي
معدل خصوبة ثابت	ثابت	عادي	عادي
معدل وفيات ثابت	متوسط	ثابت	عادي
هجرة صفرية	متوسط	عادي	صفري

المصدر: شعبة السكان التابعة لإدارة الشؤون الاقتصادية والاجتماعية بالأمانة العامة للأمم المتحدة (٢٠٠٣). التوقعات السكانية في العالم: تنقيح عام ٢٠٠٢. الملامح الرئيسية. نيويورك، الأمم المتحدة.

موجز التغيُّرات التي أدخلت على المنهجية من أجل "تنقيح عام ٢٠٠٢"

أدخلت التغييرات والتعديلات التالية في ''تنقيح عام ٢٠٠٢'' فيما يتعلق بالإجراءات المتبعة في ''تنقيح عام ٢٠٠٠'':

١ - في إطار المتغير المتوسط، أُعدت إسقاطات مسارات الخصوبة المقبلة للبلدان التي يزيد فيها معدل الخصوبة الإجمالي عن ٢,١ طفل لكل امرأة باستخدام نماذج مستمدة من الخبرات السابقة لجميع البلدان التي انخفض فيها معدل الخصوبة فعلا.

٢ - لم تعد البلدان التي يتجاوز معدل الخصوبة الإجمالي فيها ٢,١ طفل لكل امرأة مجبرة على وقف الانخفاض المقبل في معدل الخصوبة عند ٢,١ طفل لكل امرأة. وبدلا من ذلك، قد تستمر معدلات الخصوبة فيها في الانخفاض حتى تصل ١,٨٥ طفل لكل امرأة، وهي القيمة الدنيا التي لا يُسمح لمعدل الخصوبة بأن ينخفض عنها في إطار المتغير المتوسط. وكما حدث في ''تنقيح عام ٢٠٠٠'' لا يلزم أن تصل جميع البلدان إلى معدل خصوبة إجمالي قدره ٢,١ أو ١,٨٥ طفل لكل امرأة خلال الفترة المشمولة بالإسقاطات في إطار المتغير المتوسط.

٣ - يُفترض أن يقارب المعدل الإجمالي لجميع البلدان ذات الخصوبة المنخفضة ١,٨٥ طفل لكل امرأة بحلول نهاية الفترة المشمولة بالإسقاطات بدلا من وصول قيم مستهدفة مختلفة كما ورد في ''تنقيح عام ٢٠٠٠''.

٤ - فيما يتعلق بجميع البلدان، يتوقع أن يصل معدل الخصوبة الإجمالي في إطار المتغيرين المرتفع والمنخفض ٠,٥ طفل أكثر و ٠,٥ طفل أقل، على التوالي، من المعدل الإجمالي للمتغير المتوسط. وفي ''تنقيح عام ٢٠٠٠'' استخدم فرق ٠,٤ طفل في حالة البلدان ذات الخصوبة المنخفضة.

٥ - عُدلت تقديرات وإسقاطات أثر فيروس نقص المناعة البشرية/الإيدز لإدراج النموذج الذي وضعه فريق الإحالة المعني بالتقديرات ووضع النماذج والإسقاطات التابع لبرنامج الأمم المتحدة المشترك المعني بفيروس نقص المناعة البشرية/الإيدز. ويسمح استخدام النموذج الجديد بصياغة افتراضات تتعلق بالإسقاطات على أساس المحدِّدات المجدية فيما يتعلق بديناميات الوباء.

前言

本报告概述了联合国秘书处经济和社会事务部人口司编制的世界人口正式估算和预测《2002 年修订本》的结果。此外，它还简要阐述了用以作出预测的有关生育力、死亡率和移徙的各种假设，并概述了《2002 年修订本》对《2000 年修订本》采用的程序作出的改动和调整。《2002 年修订本》是人口司自 1950 年以来进行的第十八次全球人口估算和预测。

《2002 年修订本》的全部结果将分三卷印发。第一卷[1] 为综合表，列出了 1950-2050 年每个国家的主要人口指标；第二卷[2] 是按年龄和性别分列的 1950-2050 年期间每个国家的人口分布情况；第三卷[3] 对得到的有关结果进行了分析。

还将用数字形式分发有关数据。感兴趣的用户可购买内有《2002 年修订本》主要结果的光盘。人口司的网址（见下面的网址）上会有光盘数据的说明和订购单。

人口司对《2002 年修订本》负责。人口司同联合国各区域委员会、专门机构和其他有关机构的合作有助于《2002 年修订本》的编写工作。人口司还感谢经济和社会事务部统计司继续予以合作。

可从人口司的网址(www.unpopulation.org)查阅《2002 年修订本》的一些内容和其他人口信息。如需《2002 年修订本》的进一步资料，请接洽 Mr. Joseph Chamie, Director, Population Division, United Nations, New York, NY 10017, USA(传真：1 212 963 2147)。

[1] 《世界人口前景：2002 年修订本》第一卷，《综合表》(联合国出版物，即将发行)。

[2] 《世界人口前景：2002 年修订本》第二卷，《世界人口的性别和年龄分布情况》(联合国出版物，即将发行)。

[3] 《世界人口前景：2002 年修订本》第三卷，《分析报告》(联合国出版物，即将发行)。

执行摘要

《2002 年修订本》是联合国秘书处经济和社会事务部人口司进行的第十八次全球人口估算和预测。整个联合国系统根据这些估算和预测来开展那些需要有人口资料的活动。

联合国人口正式估算和预测《2002 年修订本》在提出今后人类生育力和艾滋病毒/艾滋病的影响的假设方面有所创新。联合国人口司首次预测大多数发展中国家今后生育力会下降，每个妇女生育子女的人数在 21 世纪某个时候可能会低于人口长期更替所需要的 2.1 人。《2002 年修订本》根据中变方预测，到 2050 年时，较不发达区域每四个国家中有三个国家会出现生育力低于人口更替所需水平的情况。

修改有关假设是今后生育力趋势评估工作的第三阶段，即最后阶段。人口司在 1997 年召开了一次专家会议，审查用于预测生育力低于更换水平国家的生育力的准则。[1] 根据会议进行的审议，在《1998 年修订本》涉及的整个预测期期间，将低生育力国家的生育力列为低于更换水平。2001 年召开了类似的专家会议，讨论那些生育力尚未下降或生育力刚刚开始下降国家的人口前景。[2] 《2000 年修订本》已经预测这些国家生育力下降的速度将慢于《1998 年修订本》确定的速度；这些国家生育力下降的速度预计不会比《2000 年修订本》预测的速度快很多。最后，2002 年举行的专家会议讨论了如何有关预测生育力居中国家的今后生育力的准则。生育力居中国家是指那些生育力已经大幅度下降，但尚未低于更换水平的国家。[3] 《2002 年修订本》中的生育力预测体现了这次会议的结论。

《2002 年修订本》的第二个重大修改是，与以前的修订本相比，它预计艾滋病毒/艾滋病的流行对那些受其影响最严重国家产生的影响会更大，时间更长。建立了 53 个国家受这一疾病影响的详尽模式，而《2000 年修订本》只有 45 个国家的模式。现假定艾滋病动态在 2010 年之前不会有变化；2010 年后，由于行为改变致使进入高危群体的人数减少和有高风险行为者的感染率下降，流行率会相应下降。因此，艾滋病流行率在 2010 年之前仍会较高，其后会下降，到本世纪中时仍不会太低。

由于这些修改，《2002 年修订本》有关 2050 年人口的预测低于《2000 年修订本》的预测：按中变方预测为 89 亿人，而不是 93 亿人。这两个人口预测相差 4 亿人，其中一半是因为预计死亡人数会增加，而死亡的增加大部分是因为预计

[1] 低于更换水平的生育力，《联合国人口通讯》，1999 年第 40/41 号特刊，（联合国，2000 年）。

[2] 联合国关于高生育力国家生育力下降的前景的讲习班，纽约，2001 年 7 月 9 日至 11 日（联合国，ESA/P/WP.167）。

[3] 完成生育力的过渡（联合国，ESA/P/WP.1/Rev.1）。

艾滋病流行率会上升。差异的另一半是因为预计出生人数会下降，主要原因是未来的生育力会下降。

《2002 年修订本》的结果证实了以前各修订本的主要结论，使人们对人口预测受未来生育力和死亡率趋势影响这一问题有新的了解。下面概述了《2002 年修订本》的主要结论。

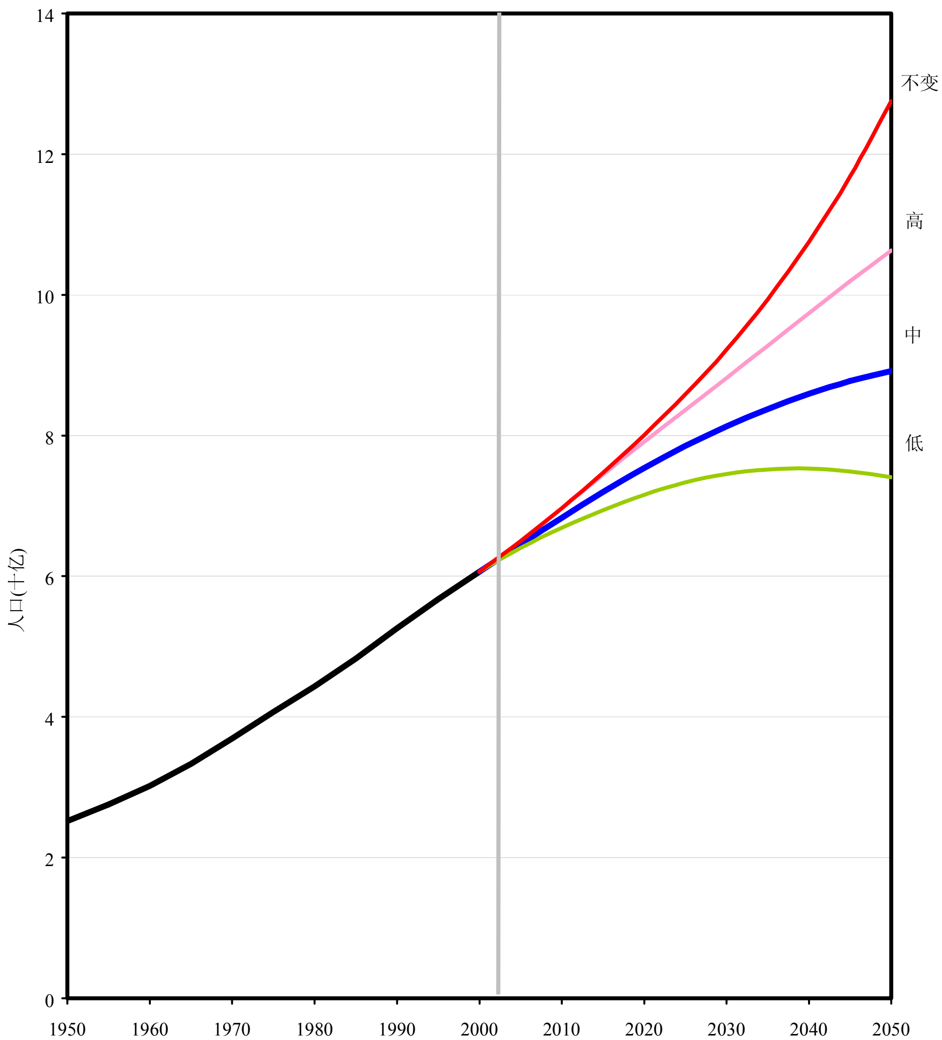
1. 尽管预计生育力会下降，某些人口群体的死亡率可能会增加，世界人口在今后 47 年内预期会增加 26 亿，从今天的 63 亿增加到 2050 年的 89 亿。但是，实现这一预测取决于确保夫妻获得计划生育服务，为阻止艾滋病毒/艾滋病目前的传播作出的努力取得成功，遏制了它的蔓延势头。人口大幅度增加的可能性仍然很大。《2002 年修订本》的结果表明，如果所有国家的生育力与现在一样保持不变，世界人口到 2050 年将增加一倍，达到 128 亿。哪怕生育力下降略慢于预计的中变方，人口也会增加数十亿。因此，如高变方所示，如果妇女生育子女人数平均比中变方多 0.5 个，世界人口就会在 2050 年达到 106 亿人。按照妇女生育子女人数平均比中变方少 0.5 个人的低变方，2050 年时世界上将有 74 亿人（见下页的数字）。

2. 世界人口目前在按每年 1.2%的速度增加，这意味着每年净增加 7 700 万人。6 个国家占了每年人口增长的一半：印度 21%；中国 12%；巴基斯坦 5%；孟加拉国、尼日利亚和美利坚合众国各占 4%。

3. 《2002 年修订本》明确显示，世界各地区和各国人口动态正出现不同的趋势。世界较发达地区的人口目前正以 0.25%的速度增加，较不发达区域人口增长的速度几乎要快 6 倍，为 1.46%，而其中最不发达国家的人口则以更快的速度增加（每年 2.4%）。这种差异，虽然会略微缩小，将持续到 2050 年。届时，较发达地区人口减少的趋势已持续 20 年之久，而较不发达地区的人口仍然会以每年 0.4%的速度增加。更重要的是，最不发达国家的人口在 2045-2050 年期间仍然可能以每年 1.2%的速度迅速增加。

4. 较发达地区的人口目前为 12 亿，由于这些趋势，这一数目在今后 50 年内预计不会有什么变化。此外，由于大多数发达国家的生育力在 2000-2050 年期间预计会低于更替水平，30 个发达国家的人口到本世纪中期时会低于目前的人数（例如，日本将减少 14%；意大利 22%、保加利亚、爱沙尼亚、格鲁吉亚、拉脱维亚、俄罗斯联邦和乌克兰则介于 30%和 50%之间）。

按预测变方估算和预测的世界人口，1950-2050



来源：联合国秘书处经济和社会事务部人口司（2003 年）《世界人口前景：2002 年修订本》纽约：联合国。

5. 较不发达地区的人口预计会从 2000 年的 49 亿稳步增加到 2050 年的 77 亿（中变方）。最不发达国家的人口增长尤其快，从 6.68 亿增加到 17 亿，尽管预计它们今后的生育力会明显下降（从目前每个妇女生育 5.1 个子女下降到 2045-2050 年的 2.5 个子女）。按每年高于 2.5%的速度计算，布基那法索、马里、尼日尔、索马里、乌干达和也门的人口在 2000 年和 2050 年期间预计将增加四倍，从 8 500 万增加到 3.69 亿。

6. 即便预计人口最多国家的生育力不会高，但这些国家人口预计会大幅度增加。因此，在 2000-2050 年期间，8 个国家（印度、巴基斯坦、尼日利亚、美利坚合众国、中国、孟加拉国、埃塞俄比亚和刚果民主共和国（按人口增长排列））预计将占世界人口增长的一半。

7. 在过去 50 年中，较不发达国家的生育力明显下降，从每个妇女生育 6 个子女下降到 3 个。在今后 50 年内，较不发达地区的生育力预计在 2030-2035 年达到更替水平，并在其后低于更替水平。但是到 2045-2050 年时，较不发达地区总体平均生育力仍然略高于每个妇女生育 2 个子女的水平，这主要是因为发展中国家人口动态的趋势日趋不同。因此，49 个最不发达国家的总体生育力到 2045-2050 年时预计为每个妇女生育 2.5 个子女，远远高于更替水平。因而《2002 年修订本》预计有许多国家不会完成向生育力低于更替水平阶段的过渡。

8. 就未来的死亡率而言，也明显有不同的趋势。从全球来看，到 2045-2050 年时，出生时预期寿命可能会从目前的 65 岁增加到 74 岁。但是，较发达地区的预期寿命会从目前的 76 岁增加到 82 岁，较不发达地区的预期寿命仍然很低，到本世纪中时从目前的 63 岁增加到 73 岁。在最不发达国家中，许多艾滋病毒/艾滋病流行的国家的预期寿命目前仍然低于 50 岁，到 2000 年时预期不会超过 67 岁。因此，虽然不同类国家在预期寿命上的差距会缩小，但是，到本世纪中时，在生存机会方面的差距仍然会很大。

9. 《2002 年修订本》表明，艾滋病毒/艾滋病致使发病率和死亡率上升，人口减少，产生越来越严重的影响。虽然假定今后感染艾滋病毒的机会将大大降低（特别是在 2010 年后），艾滋病仍然产生长期重大影响。在这一个十年中，在艾滋病流行最严重的 53 个国家中，艾滋病估计额外造成 4 600 万人死亡，到 2050 年时将增加到 2.78 亿人。尽管艾滋病毒/艾滋病造成严重影响，但是，艾滋病流行国家的人口到本世纪中期时一般会比现在多，这主要是因为其中大多数国家的生育力很高或较高。但是，南部非洲发病率在 20%以上的艾滋病流行最厉害的 7 个国家的人口预计只会略有增加，从 2000 年的 7 400 万增加到 2050 年的 7 800 万，而博茨瓦纳、莱索托、南非和斯威士兰的人口会出现减少。

10. 《2002 年修订本》预计生育力会有更大的下降，因此，与以前修订本的预测相比，发展中国家人口的老龄化速度会更快。就全球而言，老年人（60 岁以上）的人数几乎会增加三倍，从 2000 年的 6.06 亿增加到 2050 年的近 19 亿。目前，每 10 个老人中有 6 个生活在较不发达地区，到 2050 年时，将有 8 个人生活在较不发达地区。全世界年龄最大的老年人（80 岁或 80 岁以上）人数会有更大的增加：从 2000 年的 6 900 万增加到 2050

年的 3.77 亿。在较不发达地区，这类人数将从 3 200 万增加到 2.65 亿，再次表明到 2050 年时，年龄最大老年人大多数将生活在较不发达地区。

11. 在较发达地区，60 岁或 60 岁以上的人目前占人口的 19％，到 2050 年时，他们将占人口的 32％。较发达地区的老年人人数已经超过了儿童（0 岁至 14 岁人数，到 2050 年时，每有 1 个儿童，就有 2 个老人。在较不发达地区，60 岁或 60 岁以上的人将从 2000 年的 8％增加到 2050 年的近 20％。

12. 50％的人年龄比它高、50%的人年龄比它低的年龄即是中位年龄，人口的老龄化表现在中位年龄的增加。

13. 在本世纪前五十年中，国际移徙人数仍然会很高。较发达地区仍然是国际移徙者要去的地方，在今后 50 年内每年平均接收大约 200 万移徙者。按 2000-2050 年期间平均数目计算，以下国家预计仍然是国际移徙者的主要接收者：美国（每年 110 万移民）、德国（21 万）、加拿大（17.3 万）、联合王国（13.6 万）和澳大利亚（8.3 万）。主要移民输出国预计为：中国（每年 30.3 万）、墨西哥（26.7 万）、印度（22.2 万）、菲律宾（18.4 万）和印度尼西亚（18 万）。

《2002 年修订本》的基本假设

《2002 年修订本》有六个预测变方。其中四个变方对今后生育力趋势提出了不同的假设。第五个变方采今后的死亡率提出了不同的假设。第六个变方对今后移徙趋势提出了不同的假设。

为了阐述不同的预测变方，先阐述有关生育力、死亡率和国际移徙的假设。

A. 生育力假设

1. **高生育力国家**：到 2000 年时生育力没有下降或只是刚开始下降的国家；

2. **中生育力国家**：1995-2000 年期间生育力在下降但仍然高于每个妇女 2.1 名子女的国家；

3. **低生育力国家**：1995-2000 年期间总生育力为每个妇女 2.1 名子女或更低的国家。

中生育力假设：

1. 联合国人口司根据 1950-2000 年期间所有生育力有所下降国家的以往情况，建立了生育力下降的模式。现假定中高生育力国家的总生育力会按这一模式产生的趋势下降。有关模式把一个时期的总生育力同下一个时期总生育力的预期平均下降联系起来。就中变方而言，如果一个模式预测总生育力低于每

个妇女 1.85 个子女，预测人口实际采用的数值还是 1.85，即每个妇女 1.85 个子女是一个最低数值，2050 年前不让中高生育力国家总生育力下降幅度低于这一数值。但是，并不是所有国家到 2050 年时都要达到这一最低数值。如果所用生育力变化模式产生的 2045-2050 年总生育力高于每个妇女 1.85 个子女，就用这一数值来预测人口。

2. 低生育力国家的总生育力在预测所涉期间一般假定低于每个妇女 2.1 个子女，在 2045-2050 年达到 1.85 个子女。对那些 1995-2000 年总生育力估计低于每个妇女 1.85 个子女的低生育力国家来说，总生育力预计会进一步下降，然后才会缓慢上升，到 2045－2050 年达到 1.85 个子女。

高生育力假设：

就高变方而言，在预测所涉期间的大部分时间内，总生育力比中变方要多 0.5 个子女。到 2045-2050 年时，高变方的总生育力比中变方的总生育力要多 0.5 个子女，即总生育力为中变方的每个妇女 1.85 个子女的高变方国家，在预测所涉期间结束时达到 2.35 个子女。

低生育力假设：

就低变方而言，在预测所涉期间的大部分时间内，总生育力比中变方要少 0.5 个子女。到 2045-2050 年时，低变方的总生育力比中变方的总生育力要少 0.5 个子女，即总生育力为中变方的每个妇女 1.85 个子女的低变方国家，在预测所涉期间结束时达到 1.35 个子女。

生育力不变假设：

每个国家的总生育力不变，维持在 1995-2000 年的估计数值。

B. 死亡率假设

正常死亡率假设：

死亡率是根据联合国人口司建立的预期寿命变化模式来预测的。通常按死亡率以中等速度下降来预测今后的死亡率。但是，就艾滋病毒/艾滋病普遍流行的国家而言，通常按死亡率慢速下降来预测与艾滋病毒/艾滋病无关的一般死亡风险的减少。

此外，就艾滋病毒/艾滋病普遍流行的国家而言，明确根据有关艾滋病今后的趋势，即艾滋病毒每年的感染率的假设，来评估艾滋病毒/艾滋病的影响。把艾滋病规划署估算、模式和预测咨商小组[4]建立的模式来配上了艾滋病规划署提供的以往艾滋病估计发病率数据，以获取用于确定艾滋病以往动态的参数。对大

[4] 评估艾滋病毒/艾滋病及其影响的改良方法和假设：艾滋病规划署估算、模式和预测咨商小组。《艾滋病》，第 16 卷，第 W1-W14 页，（艾滋病规划署估算、模式和预测咨商小组,2002 年）。

多数国家而言，使用这一模式时假定有关参数在过去维持不变。为预测目的，有关参数在 2010 年前保持不变。2010 年后，表明新近进入高风险或易感染群体人数的 PHI 参数预计会下降三分之一，但每下降三分之一需要的时间越来越长。此外，表明传染力的 R 参数预计在同一时期会下降 15%。R 参数下降是假定那些可能被感染的人的行为改变将减少病毒传播的机会。

死亡率不变的假设：

每个国家的死亡率不变，维持在 1995-2000 年的估计数值。

C. 国际移徙假设

正常移徙假设：

在估算以往国际移徙人数和评估各国对今后国际移徙流向的政策立场的基础上，确定了今后国际移徙趋势。

零移徙：

2000-2050 年期间每个国家的国际移徙为零。

下表有系统地列出了据以提出六个预测变方的六个不同假设。如表所示，四个生育力变方（低、中、高生育力和生育力不变）都采用相同的有关死亡率和国际移徙的假设。它们只是采用了不同有关生育力的假设。因此，通过比较它们的结果，可以评估不同生育力趋势对其他人口参数的影响。

除了四个生育力变方外，还提出了一个死亡率不变变方和一个零移徙变方。这两个变方都采用相同的生育力假设（即中等生育力）。此外，死亡率不变变方和中变方都采用了相同的有关国际移徙的假设。因此，可将死亡率不变变方的结果同中变方的结果进行比较，以评估死亡率变化对其他人口参数的影响。同样的，零移徙变方与中变方唯一不同之处是有关移徙的基本假设不同。因此，可以通过零移徙变方来评估非零移徙对其他人口参数的影响。

按有关生育力、死亡率和国际移徙的假设开列的预测变方

	假设		
预测变方	生育力	死亡率	国际移徙
低	低	正常	正常
中	中	正常	正常
高	高	正常	正常
生育力不变	不变	正常	正常
死亡率不变	中	不变	正常
零移徙	中	正常	零

来源：联合国秘书处经济和社会事务部人口司（2003）。《世界人口前景：2002 年修订本》。《概要》。纽约：联合国。

《2002 年修订本》改变方法的概要

《2002 年修订本》对《2000 年修订本》采用的方法作出了以下改动和调整：

1. 根据生育力已经下降的所有国家的以往经验，建立了一些模式。在中变方中，总生育力高于每个妇女 2.1 个子女的国家今后的生育趋势就是利用这些模式预测的。

2. 目前总生育力高于每个妇女2.1个子女的国家今后生育力下降的幅度不再限于降到每个妇女 2.1 个子女。这些国家的生育力可以继续下降到最低数值，即每个妇女 1.8 个子女。对中变方而言，总生育力不能低于这一数值。如《2002 年修订本》所述，对中变方而言，并非所有国家在预测所涉期间都要达到每个妇女 2.1 个或 1.85 个子女的总生育力。

3. 假设所有低生育力国家的总生育力在预测所涉期间结束时都达到每个妇女 1.85 个子女，而不是象《2000 年修订本》那样，达到不同的预定数值。

4. 对所有国家而言，高变方和低变方的总生育力预计分别比中变方的总生育力多 0.5 个子女或少 0.5 的子女。在《2000 修订本》中，低生育力国家相差 0.4 个子女。

5. 修改了对艾滋病毒/艾滋病影响的估算和预测，以便列入艾滋病规划署估算、模式和预测咨商小组建立的模式。通过采用新的模式，能够根据具有实际意义的艾滋病动态参数，提出预测的假设。

Préface

On trouvera dans le présent rapport le résumé des résultats de la *Révision de 2002* des estimations et projections officielles concernant la population mondiale établies par la Division de la population du Département des affaires économiques et sociales du Secrétariat de l'ONU. En outre, le rapport donne un aperçu des hypothèses concernant la fécondité, la mortalité et les migrations utilisées pour l'établissement des projections ainsi qu'un résumé des modifications et ajustements introduits dans la *Révision de 2002* par rapport aux procédures suivies dans la *Révision de 2000*. La *Révision de 2002* est fondée sur les résultats de la dix-huitième série d'estimations et projections démographiques mondiales entreprises par la Division de la population depuis 1950.

Les résultats complets de la *Révision de 2002* seront publiés dans une série de trois volumes. Le premier volume[1] contiendra les tableaux détaillés relatifs aux principaux indicateurs démographiques pour chaque pays, de 1950 à 2050; le deuxième volume[2] présentera la répartition par âge et par sexe de la population de chaque pays au cours de la période 1950-2050; et le troisième volume[3] sera consacré à une analyse des résultats obtenus.

Les données seront également disponibles sous forme numérique. Les utilisateurs intéressés peuvent acheter un CD-ROM contenant les principaux résultats de la *Révision de 2002*. Une description des données contenues dans le CD-ROM et un formulaire de commande seront affichés sur le site Web de la Division de la population (voir adresse ci-dessous).

La responsabilité de la *Révision de 2002* incombe à la Division de la population. L'élaboration de la *Révision de 2002* a été facilitée par la collaboration offerte à la Division de la population par les commissions régionales, les institutions spécialisées et d'autres organes pertinents des Nations Unies. La Division de la population remercie également la Division de statistique du Département des affaires économiques et sociales de sa coopération continue.

On trouvera certains résultats de la *Révision de 2002* ainsi que d'autres informations démographiques sur le site Web de la Division de la population à l'adresse <www.unpopulation.org>. Pour tout complément d'information au sujet de la *Révision de 2002*, veuillez entrer en contact avec M. Joseph Chamie, Directeur de la Division de la population, Nations Unies, New York, NY 10017, États-Unis (télécopie : 1 (212) 963-2147).

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[1] *World Population Prospects: The 2002 Revision*, vol. I, *Comprehensive Tables* (publication des Nations Unies, à paraître).

[2] *World Population Prospects: The 2002 Revision*, vol. II, *Sex and Age Distribution of the World Population* (publication des Nations Unies, à paraître).

[3] *World Population Prospects: The 2002 Revision*, vol. III, *Analytical Report* (publication des Nations Unies, à paraître).

Résumé

La *Révision de 2002* est fondée sur les résultats de la dix-huitième série d'estimations et projections démographiques officielles de l'ONU établies par la Division de la population du Département des affaires économiques et sociales du Secrétariat de l'Organisation. Ces estimations et projections sont utilisées dans l'ensemble du système des Nations Unies où elles servent de base aux activités pour lesquelles des informations démographiques sont nécessaires.

La *Révision de 2002* des estimations et projections démographiques officielles de l'ONU apporte des éléments nouveaux en ce qui concerne les hypothèses qui ont été faites sur l'évolution de la fécondité humaine et l'impact de l'épidémie de VIH/sida. Pour la première fois, la Division de la population du Secrétariat de l'ONU prévoit que le niveau de fécondité dans la majorité des pays en développement tombera probablement en deçà de 2,1 enfants par femme, le niveau requis pour assurer le remplacement à long terme de la population, au cours du XXIe siècle. En 2050, selon la variante moyenne de la *Révision de 2002*, il est prévu que la fécondité se situera en dessous du niveau de remplacement dans les trois quarts des pays des régions moins développées.

Cette modification des prévisions représente la troisième et dernière phase du processus d'évaluation des tendances futures de la fécondité. En 1997, la Division de la population a convoqué une réunion d'experts chargée d'examiner les directives pour les prévisions de la fécondité dans les pays ayant une fécondité en dessous du niveau de remplacement[1]. Comme suite aux délibérations de cette réunion, le taux de fécondité des pays à faible fécondité a été maintenu en deçà du seuil de remplacement pendant toute la période faisant l'objet de prévisions dans la révision de 1998. En 2001, une réunion d'experts similaire a été organisée afin d'examiner les perspectives pour les pays où la fécondité n'avait pas encore commencé à baisser ou dans lesquels un déclin commençait à apparaître[2]. Dans la *Révision de 2000*, il était déjà prévu que le taux de fécondité dans ces pays baisserait plus lentement qu'il n'était indiqué dans la *Révision de 1998*, et la *Révision de 2002* ne prévoit pas une baisse beaucoup plus rapide de leur taux de fécondité. Enfin, en 2002, les participants à une réunion d'experts ont examiné la manière de prévoir l'évolution de la fécondité dans les pays à fécondité intermédiaire, c'est-à-dire ceux qui avaient déjà enregistré une baisse importante de la fécondité, mais n'avaient pas encore atteint des niveaux de fécondité en deçà du seuil de remplacement[3]. Les projections concernant la fécondité dans la *Révision de 2002* tiennent compte des conclusions auxquelles on est parvenu à cette réunion.

Une deuxième modification importante dans la *Révision de 2002* est qu'elle prévoit un impact plus grave et plus prolongé de l'épidémie de VIH/sida dans les pays les plus touchés, par rapport aux révisions précédentes. L'impact de la maladie fait l'objet de modèles explicites pour 53 pays, par rapport aux 45 pays examinés dans la *Révision de 2000*. On ne prévoit pas de changement dans la dynamique de l'épidémie jusqu'en 2010. Par la suite, on prévoit une baisse des taux de fréquence

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[1] Fécondité en dessous du niveau de remplacement, *Bulletin démographique des Nations Unies*, Numéro spécial Nos 40 et 41, 1999 (Nations Unies, 2000).

[2] Séminaire des Nations Unies sur les perspectives de baisse du taux de fécondité dans les pays à fort taux de fécondité, New York, 9-11 juillet 2001 (Nations Unies, ESA/P/WP.167).

[3] Completing the Fertility Transition (Nations Unies, ESA/P/WP.1/Rev.1).

due à des modifications de comportement qui réduisent le nombre de personnes classées dans le groupe à haut risque ainsi que le taux d'infection parmi les personnes ayant un comportement à haut risque. Les taux d'infection par le VIH restent donc relativement élevés jusqu'en 2010 et baissent par la suite, mais ils sont encore importants vers le milieu du siècle.

À la suite de ces modifications, la *Révision de 2002* prévoit une population totale moins élevée en 2050 qu'il n'était prévu dans la *Révision de 2000* : 8,9 milliards au lieu de 9,3 milliards de personnes selon la variante moyenne. Environ la moitié de l'écart de 400 millions de personnes entre ces projections est due à une augmentation du nombre de décès prévu, dont la majorité découle des niveaux prévus plus élevés d'infection par le VIH. L'autre moitié de l'écart est due à une réduction du nombre prévu de naissances, principalement en raison d'une baisse prévue des taux de fécondité.

Les résultats de la *Révision de 2002* viennent confirmer les principales conclusions des révisions précédentes et donnent de nouvelles indications au sujet de la sensibilité des projections démographiques à l'évolution des tendances de la fécondité et de la mortalité. Les principales conclusions de la *Révision de 2002* sont résumées ci-après.

1. Malgré la baisse prévue des taux de fécondité et les risques accrus de mortalité auxquels seront soumis certains groupes, la population mondiale devrait augmenter de 2,6 milliards de personnes au cours des 47 prochaines années, en passant de 6,3 milliards de personnes actuellement à 8,9 milliards de personnes en 2050. Toutefois, la matérialisation de ces projections dépend du fait que les couples ont accès à la planification familiale et que les efforts visant à enrayer la propagation actuelle de l'épidémie de VIH/sida aboutissent à une réduction de son expansion. Le potentiel d'accroissement considérable de la population reste élevé. Selon les résultats de la *Révision de 2002*, si les taux de fécondité restaient constants dans tous les pays aux niveaux actuels, la population mondiale totale pourrait plus que doubler d'ici à 2050, pour atteindre 12,8 milliards de personnes. Une baisse de la fécondité à peine plus lente que celle qui est prévue dans la variante moyenne entraînerait une augmentation de plusieurs milliards de personnes. Par conséquent, si les femmes avaient, en moyenne, 0,5 enfant de plus que la variante moyenne, la population mondiale pourrait passer à 10,6 milliards de personnes en 2050, comme prévu dans la variante élevée. Selon la variante faible, où les femmes auraient, en moyenne, 0,5 enfant de moins que la variante moyenne, la population mondiale en 2050 serait de 7,4 milliards de personnes (voir figure ci-après).

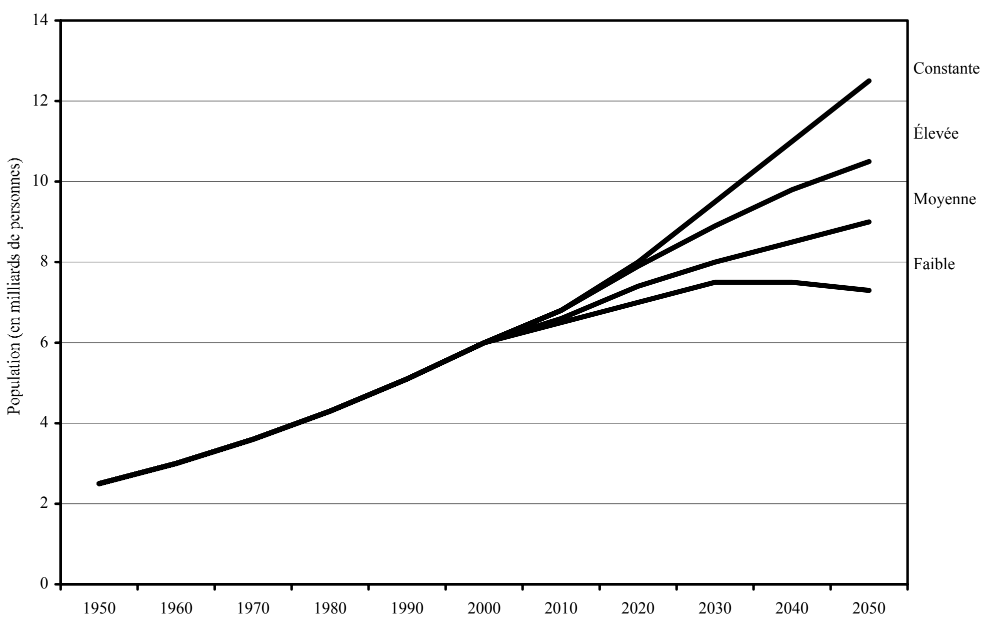
2. La population mondiale connaît actuellement un taux de croissance annuelle de 1,2 %, ce qui implique une augmentation nette de 77 millions de personnes par an. Cette augmentation est imputable pour moitié à six pays : l'Inde (21 %); la Chine (12 %); le Pakistan (5 %); le Bangladesh, le Nigéria et les États-Unis d'Amérique (4 % chacun).

3. La diversité croissante de la dynamique démographique entre les pays et les régions du monde est évidente dans les résultats de la *Révision de 2002*. Alors qu'actuellement, la population des régions plus développées du monde augmente à un taux annuel de 0,25 %, celle des régions moins développées augmente à un taux presque six fois supérieur (1,46 %), et le sous-groupe des 49 pays les moins avancés connaît une croissance démographique encore plus rapide (2,4 % par an). Ces différences, quoique légèrement atténuées, persisteront jusqu'en 2050.

À ce moment-là, la population des régions plus développées aura connu un déclin depuis 20 ans, alors que la population des régions moins développées continuera à augmenter à un taux annuel de 0,4 %. Un facteur encore plus important est que la population des pays les moins avancés continuera probablement à augmenter à un taux annuel vigoureux de plus de 1,2 % entre 2045 et 2050.

4. En raison de ces tendances, on prévoit peu de changements au cours des 50 prochaines années dans la population des régions plus développées, qui s'élève actuellement à 1,2 milliard de personnes. En outre, étant donné que les niveaux de fécondité dans la plupart des pays développés devraient rester en deçà du seuil de remplacement au cours de la période 2000-2050, on prévoit qu'au milieu du siècle, la population de 30 pays développés sera moins nombreuse qu'elle ne l'est actuellement (par exemple, une réduction de 14 % au Japon; de 22 % en Italie; et de 30 à 50 % dans les cas de la Bulgarie, de l'Estonie, de la Fédération de Russie, de la Géorgie, de la Lettonie et de l'Ukraine).

Estimations et projections concernant la population mondiale selon les différentes variantes, 1950-2050



Source : Division de la population du Département des affaires économiques et sociales du Secrétariat de l'ONU (2003). *World Population Prospects: The 2002 Revision. Highlights*. New York, Nations Unies.

5. On prévoit une augmentation constante de la population des régions moins développées, qui devrait passer de 4,9 milliards de personnes en 2000 à 7,7 milliards de personnes en 2050 (variante moyenne). Une croissance particulièrement rapide est prévue dans les pays les moins avancés, dont la population devrait passer de 668 millions de personnes à 1,7 milliard de personnes, même si l'on prévoit une baisse notable de leur taux de fécondité à l'avenir (de 5,1 enfants par femme actuellement à 2,5 enfants par femme entre 2045 et 2050). En raison de taux de croissance annuelle soutenue supérieurs à 2,5 % entre 2000 et 2050, on prévoit un

quadruplement de la population du Burkina Faso, du Mali, du Niger, de l'Ouganda, de la Somalie et du Yémen, qui devrait passer de 85 millions de personnes à 369 millions de personnes au total.

6. Des accroissements importants de la population sont prévus dans les pays les plus peuplés, même si l'on prévoit une baisse de leur taux de fécondité. Par conséquent, entre 2000 et 2050, l'accroissement prévu de la population mondiale sera imputable pour moitié à huit pays (Inde, Pakistan, Nigéria, États-Unis d'Amérique, Chine, Bangladesh, Éthiopie et République démocratique du Congo, par ordre d'importance de l'accroissement de la population).

7. Au cours des 50 dernières années, on a assisté à une baisse remarquable des taux de fécondité dans les régions moins développées, où la fécondité totale est passée de six à trois enfants par femme. Au cours des 50 prochaines années, on prévoit que le taux de fécondité dans les régions moins développées atteindra le seuil de remplacement entre 2030 et 2035 et tombera ensuite en deçà de ce seuil. Toutefois, on s'attend à ce que le taux de fécondité moyen dans l'ensemble des régions moins développées soit toujours légèrement supérieur à deux enfants par femme entre 2045 et 2050, en raison du caractère de plus en plus hétérogène de la dynamique démographique dans les pays en développement. On prévoit ainsi que les 49 pays les moins avancés auront une fécondité totale de 2,5 enfants par femme entre 2045 et 2050, bien supérieure au seuil de remplacement. C'est pourquoi la *Révision de 2002* prévoit qu'au milieu du siècle, il y aura encore un nombre important de pays où la transition vers une fécondité déficitaire n'aura pas été achevée.

8. Une diversité de plus en plus grande est également évidente en ce qui concerne les niveaux futurs de mortalité. Au niveau mondial, l'espérance de vie à la naissance passera probablement de 65 ans actuellement à 74 ans entre 2045 et 2050. Toutefois, alors que l'espérance de vie dans les régions plus développées, qui est estimée actuellement à 76 ans, passera à 82 ans, elle restera considérablement inférieure dans les régions moins développées, atteignant 73 ans vers le milieu du siècle (par rapport à 63 ans actuellement). Dans le groupe des pays les moins avancés, dont beaucoup sont gravement touchés par l'épidémie de VIH/sida, l'espérance de vie est actuellement inférieure à 50 ans et ne devrait pas être supérieure à 67 ans en 2050. Par conséquent, bien qu'on prévoie une réduction de l'écart d'espérance de vie entre les différents groupes de pays, il restera toujours des différences importantes dans les probabilités de survie vers le milieu du siècle.

9. La *Révision de 2002* indique qu'il y a une aggravation de l'impact de l'épidémie de VIH/sida en termes d'augmentation de la morbidité, de la mortalité et de la perte de population. Bien que l'on suppose que la probabilité d'être infecté par le VIH baissera considérablement à l'avenir (surtout après 2010), l'impact à long terme de l'épidémie reste catastrophique. Au cours de la décennie actuelle, le nombre de décès supplémentaires dans les 53 pays les plus touchés est estimé à 46 millions de personnes et ce chiffre devrait passer à 278 millions de personnes d'ici à 2050. Malgré les effets dévastateurs de l'épidémie de VIH/sida, la population des pays touchés devrait en général être plus nombreuse vers le milieu du siècle qu'actuellement, principalement parce que la plupart de ces pays maintiennent des taux de fécondité élevés ou modérés. Toutefois, en ce qui concerne les sept pays les plus gravement touchés en Afrique australe, où le taux de fréquence actuel d'infection par le VIH est supérieur à 20 %, la population ne devrait connaître

qu'une légère augmentation en passant de 74 millions de personnes en 2000 à 78 millions en 2050, et une diminution nette de la population est prévue pour l'Afrique du Sud, le Botswana, le Lesotho et le Swaziland.

10. Les réductions plus importantes des taux de fécondité prévues dans la *Révision de 2002* impliquent un vieillissement plus rapide de la population des pays en développement par rapport aux prévisions des révisions précédentes. Au niveau mondial, le nombre de personnes âgées (60 ans ou plus) va presque tripler, en passant de 606 millions de personnes en 2000 à près de 1,9 milliard de personnes en 2050. Alors qu'actuellement, 60 % de ces personnes âgées vivent dans les régions moins développées, en 2050, 80 % d'entre elles vivront dans ces régions. Une augmentation encore plus marquée est prévue en ce qui concerne les personnes très âgées (80 ans ou plus) au niveau mondial : de 69 millions de personnes en 2000 à 377 millions de personnes en 2050. Dans les régions moins développées, leur nombre passera de 32 millions à 265 millions de personnes, ce qui signifie également que la plupart des personnes très âgées vivront dans les pays moins développés en 2050.

11. Dans les régions plus développées, le nombre de personnes âgées de 60 ans ou plus représente actuellement 19 % de la population totale; en 2050, ce groupe représentera 32 % de la population totale. La population âgée dans les régions plus développées est déjà plus nombreuse que la population infantile (personnes âgées de 0 à 14 ans) et, en 2050, il y aura deux personnes âgées pour chaque enfant. Dans les régions moins développées, la proportion des personnes âgées de 60 ans ou plus passera de 8 % de la population totale en 2000 à près de 20 % en 2050.

12. L'augmentation de l'âge moyen, c'est-à-dire l'âge qui constitue la limite entre les 50 % de la population qui ont plus que cet âge et les 50 % qui ont moins que cet âge, reflète le vieillissement de la population. Au niveau mondial, l'âge moyen a augmenté d'à peine trois ans entre 1950 et 2000, en passant de 23,6 ans à 26,4 ans, principalement parce que la majorité de la population dans les pays moins développés est restée jeune. Toutefois, au cours des 50 prochaines années, l'âge moyen au niveau mondial augmentera de près de 10 ans, pour atteindre 37 ans en 2050. On prévoit que 13 pays développés auront un âge moyen de 50 ans ou plus, avec en tête de liste le Japon, la Lettonie et la Slovénie (âge moyen d'environ 53 ans chacun) et la République tchèque, l'Estonie, l'Italie et l'Espagne (âge moyen d'environ 52 ans chacun). En outre, trois pays en développement (Arménie, République de Corée et Singapour) feront également partie de ce groupe. À l'autre extrémité du spectre, l'Angola, le Burkina Faso, le Mali, le Niger, l'Ouganda, la Somalie et le Yémen devraient encore avoir une population jeune avec un âge moyen inférieur à 23 ans en 2050.

13. On prévoit que le niveau des migrations internationales restera élevé pendant la première moitié du siècle. Les régions plus développées devraient continuer à accueillir le plus grand nombre de migrants internationaux, avec un accroissement moyen net d'environ 2 millions de migrants par an au cours des 50 prochaines années. Sur la base d'une moyenne pour la période 2000-2050, on prévoit que les principaux pays d'accueil de migrants internationaux seront les États-Unis (bilan annuel net de 1,1 million de migrants), l'Allemagne (211 000), le Canada (173 000), le Royaume-Uni (136 000) et l'Australie (83 000), alors que les principaux pays d'origine seraient la Chine (bilan annuel net de -303 000 migrants), le Mexique (-267 000), l'Inde (-222 000), les Philippines (-184 000) et l'Indonésie (-180 000).

Hypothèses sur lesquelles la *Révision de 2002* est fondée

Les projections de la *Révision de 2002* comprennent six variantes. Quatre variantes sont fondées sur des hypothèses différentes concernant l'évolution de la fécondité. La cinquième variante est fondée sur une hypothèse différente en ce qui concerne l'évolution de la mortalité et la sixième variante se fonde sur une hypothèse différente concernant l'évolution future des migrations.

Afin de décrire les différentes variantes utilisées pour les projections, des détails sont d'abord donnés sur les différentes hypothèses concernant la fécondité, la mortalité et les migrations internationales.

A. Hypothèses concernant la fécondité

Les hypothèses concernant la fécondité sont décrites pour les groupes de pays suivants :

1. *Pays à taux de fécondité élevé* : les pays qui, jusqu'en 2000, n'avaient pas enregistré de baisse de la fécondité ou avaient connu à peine un début de baisse;

2. *Pays à taux de fécondité moyen* : les pays où le taux de fécondité a baissé, mais était encore supérieur à 2,1 enfants par femme entre 1995 et 2000;

3. *Pays à taux de fécondité faible* : les pays où la fécondité totale était égale ou inférieure à 2,1 enfants par femme entre 1995 et 2000.

Hypothèses fondées sur un taux de fécondité moyen

1. On suppose que la fécondité totale dans les pays à taux de fécondité élevé et moyen baissera en suivant les modèles de baisse de la fécondité mis au point par la Division de la population du Secrétariat de l'ONU sur la base de l'expérience de tous les pays qui ont connu une baisse de la fécondité entre 1950 et 2000. Les modèles établissent un lien entre le niveau de fécondité totale au cours d'une période et la baisse moyenne prévue de la fécondité totale au cours de la période suivante. Dans le cadre de la variante moyenne, lorsque la fécondité totale prévue par un modèle tombe en deçà de 1,85 enfant par femme, la valeur effectivement utilisée dans les projections démographiques est fixée à 1,85. C'est-à-dire qu'on considère que le taux de 1,85 enfant par femme représente un seuil en deçà duquel la fécondité totale des pays à taux de fécondité élevé et moyen ne peut pas tomber avant 2050. Toutefois, il n'est pas nécessaire que tous les pays atteignent ce seuil d'ici à 2050. Si l'évolution du modèle de fécondité utilisé donne un taux de fécondité totale supérieur à 1,85 enfant par femme entre 2045 et 2050, c'est ce taux qui est utilisé dans les projections démographiques.

2. On suppose en général que la fécondité totale dans les pays à taux de fécondité faible restera inférieure à 2,1 enfants par femme pendant la plus grande partie de la période de projection et atteindra 1,85 enfant par femme entre 2045 et 2050. Dans le cas des pays à taux de fécondité faible dont la fécondité totale entre 1995 et 2000 était estimée inférieure à 1,85 enfant par femme, la fécondité totale projetée indique souvent une nouvelle baisse et augmente ensuite lentement pour atteindre 1,85 entre 2045 et 2050.

Hypothèses fondées sur un taux de fécondité élevé

Dans le cadre de la variante élevée, on prévoit que la fécondité totale restera de 0,5 enfant supérieure à la fécondité totale pour la variante moyenne pendant la plus grande partie de la période de projection. Par conséquent, entre 2045 et 2050, la fécondité totale pour la variante élevée est de 0,5 enfant supérieure à la fécondité totale pour la variante moyenne. C'est-à-dire que les pays qui atteignent un taux de fécondité totale de 1,85 enfant par femme dans la variante moyenne ont un taux de fécondité totale de 2,35 enfants par femme dans la variante élevée à la fin de la période de projection.

Hypothèses fondées sur un taux de fécondité faible

Dans le cas de la variante faible, on prévoit que le taux de fécondité totale restera de 0,5 enfant inférieur à la fécondité totale pour la variante moyenne pendant la plus grande partie de la période de projection. Par conséquent, entre 2045 et 2050, la fécondité totale pour la variante faible est de 0,5 enfant inférieure à la fécondité totale pour la variante moyenne. C'est-à-dire que les pays qui atteignent un taux de fécondité totale de 1,85 enfant par femme dans la variante moyenne ont un taux de fécondité totale de 1,35 enfant par femme dans la variante faible à la fin de la période de projection.

Hypothèse fondée sur un taux de fécondité constant

Pour chaque pays, la fécondité totale reste constante au taux estimé pour la période 1995-2000.

B. Hypothèses concernant la mortalité

Hypothèse fondée sur un taux de mortalité normal

Les projections concernant la mortalité sont fondées sur les modèles de l'évolution de l'espérance de vie élaborés par la Division de la population du Secrétariat de l'ONU. On utilise en général une baisse moyenne du taux de mortalité dans les projections concernant les niveaux futurs de mortalité. Toutefois, dans le cas des pays fortement touchés par l'épidémie de VIH/sida, on a utilisé en général une baisse lente du taux de mortalité dans les projections concernant la réduction des risques généraux de mortalité qui ne sont pas liés au VIH/sida.

En outre, dans le cas des pays fortement touchés par l'épidémie de VIH/sida, des estimations de l'impact du VIH/sida sont effectuées explicitement sur la base d'hypothèses concernant l'évolution de l'épidémie – c'est-à-dire en établissant des projections concernant le nombre annuel de nouveaux cas d'infection par le VIH. Le modèle mis au point par le Groupe de référence d'ONUSIDA sur les estimations, les modèles et les projections[4] a été utilisé pour traiter les estimations sur la fréquence dans le passé de l'infection par le VIH obtenues d'ONUSIDA, de manière à en tirer les paramètres déterminant la dynamique de l'épidémie dans le passé. Pour la plupart des pays, le modèle est ajusté en supposant que les paramètres pertinents

[4] Improved methods and assumptions for estimation of the HIV/AIDS epidemic and its impact: Recommendations of the UNAIDS Reference Group of Estimates, Modelling and Projections. *AIDS*, vol. 16, p. W1 à W14 (Groupe de référence d'ONUSIDA sur les estimations, les modèles et les projections, 2002).

sont restés constants dans le passé. Dans le cas des projections, les paramètres restent constants jusqu'en 2010. Par la suite, on prévoit que le paramètre PHI, qui reflète le taux d'intégration de nouveaux individus dans les groupes à haut risque ou vulnérables, diminuera d'un tiers au cours d'intervalles de plus en plus longs. En outre, le paramètre R, qui représente la force de l'infection, devrait diminuer de 15 % au cours des mêmes intervalles. Une réduction du paramètre R est fondée sur l'hypothèse selon laquelle les changements de comportement de ceux qui sont exposés au risque d'infection réduiront les possibilités de transmission du virus.

Hypothèse fondée sur un taux de mortalité constant

Pour chaque pays, la mortalité reste constante au taux estimé au cours de la période 1995-2000.

C. Hypothèses concernant les migrations internationales

Hypothèse fondée sur un taux de migration normal

L'évolution future des migrations internationales est déterminée sur la base des estimations concernant les migrations internationales dans le passé et d'une évaluation des politiques des pays en ce qui concerne les flux futurs de migrations internationales.

Hypothèse fondée sur un taux de migration nul

Pour chaque pays, le taux de migrations internationales est considéré comme nul pendant la période 2000-2050.

Le tableau ci-après présente d'une manière schématique les différentes hypothèses sur lesquelles sont fondées les six variantes utilisées dans les projections. Comme il est indiqué, les quatre variantes concernant la fécondité (taux de fécondité faible, moyen, élevé et constant) sont fondées sur les mêmes hypothèses en ce qui concerne la mortalité et les migrations internationales. Elles sont uniquement différentes pour ce qui est des hypothèses concernant la fécondité. Une comparaison des résultats pour chaque variante permet donc d'évaluer les effets des différents types d'évolution de la fécondité sur les autres paramètres démographiques.

Outre les quatre variantes concernant la fécondité, on a également élaboré une variante concernant un taux de mortalité constant et un taux de migrations nul, qui sont fondées sur la même hypothèse en matière de fécondité (le taux de fécondité moyen). En outre, la variante concernant le taux de mortalité constant est fondée sur la même hypothèse en matière de migrations internationales que la variante concernant le taux de fécondité moyen. Par conséquent, les résultats obtenus pour ces deux variantes peuvent être comparés afin d'évaluer les effets de l'évolution de la mortalité sur les autres paramètres démographiques. De même, la variante concernant un taux de migration nuls est uniquement différente de la variante concernant le taux de fécondité moyen en ce qui concerne l'hypothèse relative aux migrations. Par conséquent, la variante concernant un taux de migrations nul permet d'évaluer les effets des migrations non nulles sur les autres paramètres démographiques.

Variantes utilisées pour les projections et fondées sur des hypothèses concernant la fécondité, la mortalité et les migrations internationales

	Hypothèses		
Variante utilisée dans les projections	*Fécondité*	*Mortalité*	*Migrations internationales*
Taux de fécondité faible	Faible	Normale	Normales
Taux de fécondité moyen	Moyenne	Normale	Normales
Taux de fécondité élevé	Élevée	Normale	Normales
Taux de fécondité constant	Constante	Normale	Normales
Taux de mortalité constant	Moyenne	Constante	Normales
Taux de migrations nul	Moyenne	Normale	Nulles

Source : Division de la population du Département des affaires économiques et sociales du Secrétariat de l'ONU (2003). *World Population Prospects: The 2002 Revision. Highlights.* New York, Nations Unies.

Résumé des modifications méthodologiques introduites dans la *Révision de 2002*

Les changements et ajustements suivants ont été introduits dans la *Révision de 2002* par rapport aux procédures suivies dans la *Révision de 2000* :

1. Dans le cadre de la variante moyenne, les prévisions concernant l'évolution future de la fécondité des pays ayant une fécondité totale supérieure à 2,1 enfants par femme utilisent des modèles tirés de l'expérience dans le passé de tous les pays où la fécondité a déjà baissé.

2. Les pays qui ont actuellement une fécondité totale supérieure à 2,1 enfants par femme ne sont plus censés arrêter le déclin futur de leur fécondité au niveau de 2,1 enfants par femme. Leur taux de fécondité peut continuer à baisser jusqu'à ce qu'il atteigne 1,85 enfant par femme, le seuil en deçà duquel la fécondité totale ne peut pas tomber dans la variante moyenne. Comme dans la *Révision de 2000*, il n'est pas nécessaire que tous les pays atteignent une fécondité totale de 2,1 ou 1,85 enfants par femme au cours de la période de projection selon la variante moyenne.

3. On suppose que la fécondité totale de tous les pays à taux de fécondité faible convergera vers le seuil de 1,85 enfant par femme à la fin de la période de projection, au lieu d'atteindre des objectifs cibles différents comme c'était le cas dans la *Révision de 2000*.

4. Pour tous les pays, on suppose que la fécondité totale dans les variantes élevée et faible est de 0,5 enfant supérieure et de 0,5 enfant inférieure, respectivement, à la fécondité totale de la variante moyenne. Dans la *Révision de 2000*, une différence de 0,4 enfant était utilisée dans le cas des pays à taux de fécondité faible.

5. Les estimations et les projections de l'impact du VIH/sida ont été modifiées afin d'incorporer le modèle mis au point par le Groupe de référence d'ONUSIDA sur les estimations, les modèles et les projections. L'utilisation du nouveau modèle permet de formuler des hypothèses de projections sur la base de paramètres qui sont pertinents par rapport à la dynamique de l'épidémie.

Предисловие

Настоящий доклад представляет собой резюме результатов Обзора 2002 года, содержащего официальные мировые демографические оценки и прогнозы, которые были подготовлены Отделом народонаселения Департамента по экономическим и социальным вопросам Секретариата Организации Объединенных Наций. Кроме того, в настоящем докладе излагаются принятые допущения в расчетах показателей рождаемости, смертности и миграции населения, которые были заложены в основу при составлении этих прогнозов, а также содержится резюме изменений и корректировок, которые были произведены в Обзоре 2002 года в отношении методов расчета показателей, которые использовались в Обзоре 2000 года. Обзор 2002 года основан на результатах восемнадцатого раунда глобальных демографических оценок и прогнозов, которые проводятся Отделом народонаселения с 1950 года.

Полные результаты Обзора 2002 года будут представлены в виде серии публикаций из трех томов. Первый том[1] будет включать общие таблицы основных демографических показателей по каждой стране за период 1950–2050 годы, второй том[2] будет содержать данные о половозрастном распределении населения каждой страны за период 1950–2050 годов и третий том[3] будет посвящен анализу полученных результатов.

Эти данные будут также распространены в цифровом формате. Заинтересованные пользователи могут приобрести КД-ПЗУ, содержащий основные результаты Обзора 2002 года. Описание данных, содержащихся на диске КД-ПЗУ, а также бланк заказа-наряда будут размещены на веб-сайте Отдела народонаселения (см. адрес ниже).

Составлением Обзора 2002 года занимался Отдел народонаселения. В подготовке Обзора 2002 года оказывали содействие региональные комиссии, специализированные учреждения и другие соответствующие органы Организации Объединенных Наций, которые сотрудничают с Отделом народонаселения. Отдел народонаселения выражает также свою признательность Статистическому отделу Департамента по экономическим и социальным вопросам за его постоянную помощь.

Отдельные данные из Обзора 2002 года, а также другие демографические сведения можно получить на веб-сайте Отдела народонаселения по адресу: www.unpopulation.org. За дополнительной информацией, касающейся Обзора 2002 года, просьба обращаться к г-ну Джозефу Шами, директору Отдела народонаселения Секретариата Организации Объединенных Наций в Нью-Йорке (United Nations, New York, NY 10017, USA (fax: 1 212 963 2147).

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[1] *Мировые демографические перспективы: Обзор 2002 года*, том I, *Общие таблицы* (издание Организации Объединенных Наций, готовится к выпуску).

[2] *Мировые демографические перспективы: Обзор 2002 года*, том II, *Половозрастное распределение населения в мире* (издание Организации Объединенных Наций, готовится к выпуску).

[3] *Мировые демографические перспективы: Обзор 2002 года*, том III, *Аналитический доклад* (издание Организации Объединенных Наций, готовится к выпуску).

Резюме

Обзор 2002 года основан на результатах восемнадцатого раунда официальных демографических оценок и прогнозов Организации Объединенных Наций, которые были подготовлены Отделом народонаселения Департамента по экономическим и социальным вопросам Секретариата Организации Объединенных Наций. Эти данные используются в рамках всей системы Организации Объединенных Наций в качестве основы для проведения мероприятий, которые требуют включения демографических показателей.

Обзор 2002 года с пересмотром официальных демографических оценок и прогнозов Организации Объединенных Наций содержит новые элементы в использовании допущений, касающихся расчета будущих показателей рождаемости и воздействия эпидемии ВИЧ/СПИД. Впервые в прогнозах Отдела народонаселения Организации Объединенных Наций предусматривается, что в определенный период XXI века показатель рождаемости в большинстве развивающихся стран будет, по всей вероятности, ниже 2,1 ребенка на одну женщину, т.е. упадет ниже предела, необходимого для обеспечения воспроизводства населения в долгосрочной перспективе. В прогнозах Обзора 2002 года по варианту со средним уровнем рождаемости предусматривается, что к 2050 году в трех из каждых четырех стран в менее развитых регионах рождаемость будет ниже уровня воспроизводства населения.

Это изменение в применяемых допущениях было произведено на третьем и заключительном этапе процесса оценки будущих тенденций в области рождаемости. В 1997 году Отдел народонаселения организовал проведение совещания экспертов для пересмотра методики составления прогнозов рождаемости в странах с показателями рождаемости ниже уровня воспроизводства населения[1]. В результате работы этого совещания в Обзоре 1998 года показатель рождаемости для стран с низкой рождаемостью был сохранен на уровне ниже уровня воспроизводства населения в течение всего прогнозируемого периода. В 2001 году было проведено аналогичное совещание экспертов для обсуждения перспектив роста населения в странах, в которых показатели рождаемости еще не начали снижаться или имели лишь незначительные темпы снижения.[2]. Еще в Обзоре 2000 года допускалось, что в этих странах показатели рождаемости будут снижаться более медленными темпами по сравнению с показателя Обзора 1998 года, и по прогнозам Обзора 2002 года темпы снижения рождаемости в этих странах будут не намного выше. Наконец, в 2002 году было созвано совещание экспертов, на котором обсуждалась методика прогнозирования будущих показателей рождаемости в странах со средним уровнем рождаемости, т.е. в тех странах, которые уже испытали значительное снижение рождаемости, но еще не достигли уровня рождаемости, не обеспечивающего воспроизводство населения[3]. Прогнозы показателей рождаемости в Обзоре 2002 года отражают выводы, сделанные на этом совещании.

Вторым важным изменением в Обзоре 2002 года является то, что в нем ожидается более серьезное и продолжительное воздействие эпидемии ВИЧ/СПИДа в большинстве пострадавших стран по сравнению с прежними обзорами. Воздействие этого заболевания было конкретно смоделировано с охватом 53 стран по сравнению с 45 странами, которые рассматривались в Обзоре 2000 года. Динамика распространения этой эпидемии, как предполагается, будет оставаться неизменной до 2010 года. Затем уровни заболеваемости, как предполагается,

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[1] Рождаемость ниже уровня воспроизводства населения, *Бюллетень Организации Объединенных Наций по вопросам народонаселения*, специальный выпуск № 40/41, 1999 год (Организация Объединенных Наций, 2000 год).

[2] Практикум Организации Объединенных Наций по перспективам уменьшения фертильности в странах с высокой рождаемостью, Нью-Йорк, 9–11 июля 2001 года (Организация Объединенных Наций, ESA/P/WP.167).

[3] Завершение перехода к более низкой рождаемости (Организация Объединенных Наций, ESA/P/WP.1/Rev.1).

будут снижаться с учетом изменений в поведении, которые снижают вероятность попадания в группу высокого риска, а также шансы заражения этой инфекцией среди лиц, которые по своему поведению относятся к категории высокого риска. Показатели заболеваемости ВИЧ остаются относительно высокими до 2010 год и затем понижаются, однако в середине столетия они по-прежнему будут значительными.

Как следствие этих изменений в Обзоре 2002 года прогнозируется более низкая численность населения в 2050 году по сравнению с показателем Обзора 2000 года: 8,9 миллиарда человек вместо 9,3 миллиарда человек по варианту со средним уровнем рождаемости. Около половины этой разницы в 0,4 миллиарда человек в этих прогнозах численности населения приходится на увеличение числа прогнозируемых смертей, причем в основном за счет более высоких прогнозируемых показателей заболеваемости ВИЧ. Другая половина этой разницы отражает снижение прогнозируемого числа рождений, главным образом в результате снижения ожидаемых будущих уровней рождаемости.

Результаты Обзора 2002 года подтверждают основные выводы предыдущих обзоров и служат новыми инструментами для расчета демографических прогнозов с учетом будущих тенденций в области рождаемости и смертности. Ниже приводятся основные выводы Обзора 2002 года.

1. Несмотря на прогнозируемое снижение рождаемости и увеличение риска смертности среди некоторых слоев населения, ожидается, что в течение следующих 47 лет численность населения в мире увеличится на 2,6 миллиарда человек с 6,3 миллиарда человек на сегодняшних день до 8,9 миллиарда человек в 2050 году. Вместе с тем реализация этих прогнозов зависит от обеспечения того, что люди будут иметь доступ к средствам планирования семьи и что усилия, направленные на сдерживание нынешних темпов распространения эпидемии ВИЧ/СПИД, будут успешными и позволят снизить темпы роста этого заболевания. Потенциал для значительного увеличения численности населения остается высоким. Согласно результатам Обзора 2002 года, если рождаемость во всех странах будет оставаться неизменной на нынешнем уровне, общая численность населения мира к 2050 году может увеличиться более чем в два раза и достигнет 12,8 миллиарда человек. Даже при несколько более низких темпах снижения рождаемости по сравнению с показателями, заложенными в вариант со средним уровнем рождаемости, в мире появится дополнительно еще несколько миллиардов человек. Так, если женщины будут в среднем иметь где-то на половину ребенка больше, чем показатель, заложенный в вариант со средним уровнем рождаемости, численность населения в мире может возрасти в 2050 году до 10,6 миллиарда человек, как это предусмотрено в варианте с высоким уровнем рождаемости. Вариант с низким уровнем рождаемости, когда женщины имеют в среднем на половину ребенка меньше, чем в варианте со средним уровнем рождаемости, предусматривает рост населения до 7,4 миллиарда человек в 2050 году (см. диаграмму на следующей странице).

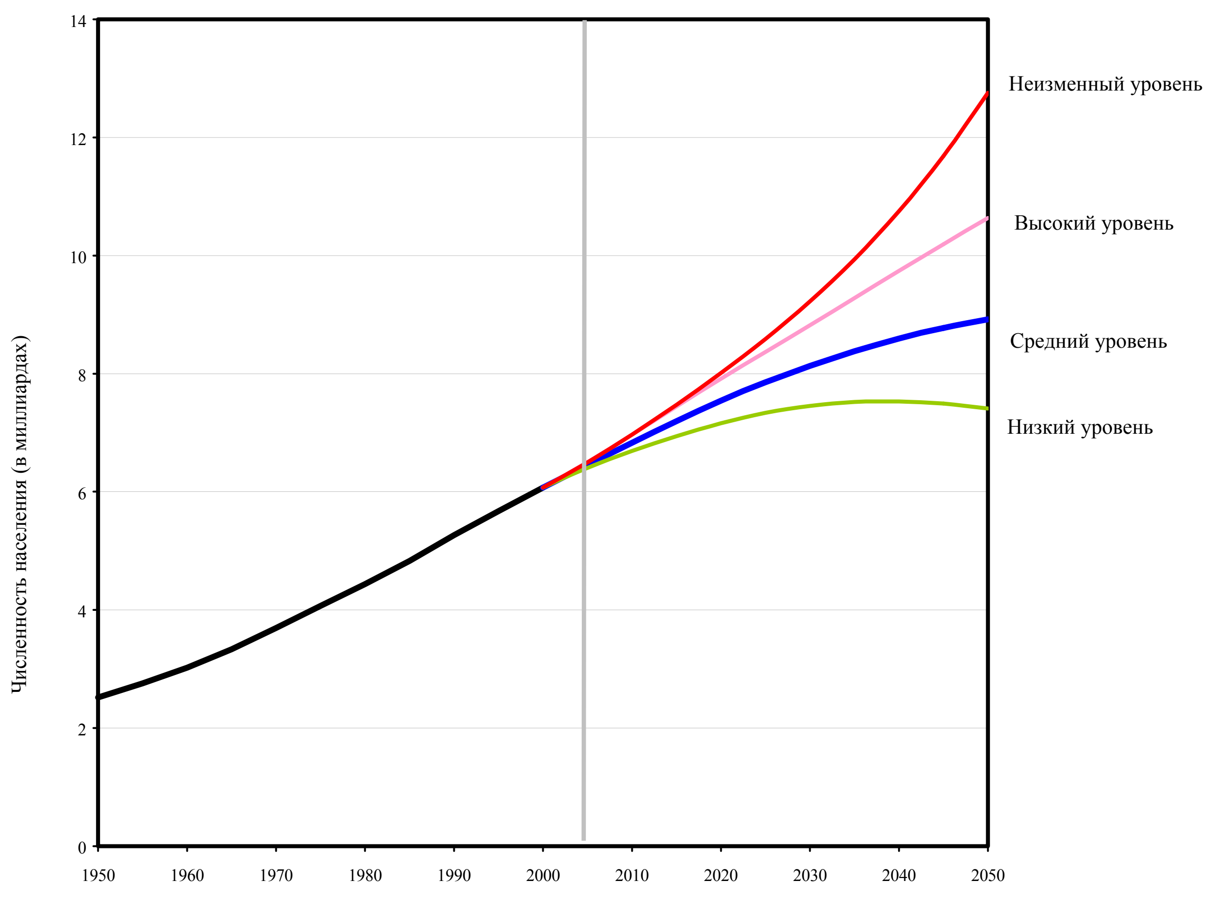
2. В настоящее время темпы прироста численности населения в мире составляют 1,2 процента в год, что означает чистый прирост населения в количестве 77 миллионов человек в год. Половина этого годового прироста приходится на долю шести стран: Индия 21 процент; Китай 12 процентов; Пакистан 5 процентов; Бангладеш, Нигерия и Соединенные Штаты Америки по 4 процента в каждой.

3. Из результатов Обзора 2002 года виден широкий разброс показателей динамики роста населения в разных странах и регионах мира. Если сегодня в более развитых регионах мира численность населения возрастает на 0,25 процента в год, то в менее развитых регионах численность населения возрастает почти в шесть раз быстрее на уровне 1,46 процента, а в категории 49 наименее развитых стран наблюдаются еще более стремительные темпы прироста населения (2,4 процента в

год). Такие различия, при некотором спаде, сохранятся вплоть до 2050 года. К тому времени в течение 20 лет численность населения в более развитых регионах будет сокращаться, а численность населения в менее развитых регионах будет по-прежнему возрастать при годовых темпах прироста в 0,4 процента. Более важным показателем является то, что в 2045–2050 годах численность населения в наименее развитых странах будет, вероятнее всего, возрастать стремительными годовыми темпами на уровне свыше 1,2 процента.

4. В результате этих тенденций в течение следующих 50 лет численность населения в более развитых регионах, которая в настоящее время составляет 1,2 миллиарда человек, претерпит, как ожидается, лишь незначительные изменения. Кроме того, поскольку, как ожидается, в течение 2000–2050 годов показатели рождаемости в большинстве развитых стран будут оставаться ниже уровня воспроизводства населения, численность населения в 30 развитых странах в середине столетия будет, по прогнозам, ниже нынешнего уровня (например на 14 процентов ниже в Японии; 22 процента ниже в Италии и на 30–50 процентов ниже в таких странах, как Болгария, Эстония, Грузия, Латвия, Российская Федерация и Украина).

Расчетная и прогнозируемая численность населения в мире при разных вариантах прогнозирования, 1950–2050 годы



Источник: Отдел народонаселения Департамента по экономическим и социальным вопросам Секретариата Организации Объединенных Наций (2003 год). *Мировые демографические перспективы: Обзор 2002 года. Основные выводы.* Нью-Йорк: Организация Объединенных Наций.

5. Численность населения менее развитых регионов, согласно прогнозам, будет неуклонно увеличиваться с 4,9 миллиарда человек в 2000 году до 7,7 миллиарда человек в 2050 году (вариант со средним уровнем рождаемости). Особенно стремительный рост населения ожидается в наименее развитых странах, в которых прогнозируется увеличение численности населения с 668 миллионов человек до 1,7 миллиарда человек, несмотря на то, что в будущем предполагается заметное снижение уровня рождаемости в этих странах (с 5,1 ребенка на одну женщину сегодня до 2,5 ребенка на одну женщину в 2045–2050 годах). При устойчивом годовом росте на уровне более 2,5 процента в год в период с 2000 года по 2050 год численность населения Буркина-Фасо, Мали, Нигера, Сомали, Уганды и Йемена должна в общей сложности возрасти, согласно прогнозам, в четыре раза с 85 миллионов до 369 миллионов человек.

6. Крупный прирост населения ожидается среди наиболее населенных стран даже при низких прогнозах рождаемости в этих странах. Так в течение 2000–2050 годов половина прогнозируемого прироста населения в мире будет, как ожидается, приходиться на долю восьми стран (Индия, Пакистан, Нигерия, Соединенные Штаты Америки, Китай, Бангладеш, Эфиопия и Демократическая Республика Конго — в порядке уровня прироста населения).

7. В последние 50 лет наблюдалось заметное сокращение уровней рождаемости в менее развитых регионах, где общая рождаемость снизилась с 6 до 3 детей на одну женщину. В течение следующих 50 лет показатель рождаемости в менее развитых регионах, как ожидается, достигнет в 2030–2035 годах уровня воспроизводства населения, а затем снизится ниже этого уровня. Вместе с тем в 2045–2050 годах средняя рождаемость в менее развитых регионах в целом будет, как ожидается, все равно на уровне немногим более 2 детей на одну женщину, что объясняется главным образом повышением гетерогенности в динамике роста населения среди развивающихся стран. Так в 2045–2050 годах в 49 наименее развитых странах ожидается получить общий показатель рождаемости на уровне 2,5 ребенка на одну женщину, что намного выше уровня воспроизводства населения. Иными словами, в Обзоре 2002 года прогнозируется, что на середину столетия будет по-прежнему довольно значительное число стран, в которых не будет завершен переход к рождаемости ниже уровня воспроизводства населения.

8. Широкий разброс показателей виден также и в отношении будущих уровней смертности. На мировом уровне продолжительность предстоящей жизни при рождении должна, по всей вероятности, повыситься с 65 лет на сегодняшний день до 74 лет в 2045–2050 годах. Однако, если в более развитых регионах, где расчетный показатель продолжительности жизни на сегодняшний день составляет 76 лет, этот показатель увеличится до 82 лет, то показатель по менее развитым регионам будет по-прежнему значительно отставать, достигнув к середине столетия 73 лет (возрастет с нынешнего уровня в 63 года). В группе наименее развитых стран, многие из которых имеют высокие показатели распространения эпидемии ВИЧ/СПИДа, сегодняшняя продолжительность жизни по-прежнему составляет менее 50 лет и к 2050 году этот показатель, как ожидается, не превысит 67 лет. Таким образом, несмотря на ожидаемое сужение разрыва в уровнях продолжительности жизни среди разных групп стран, к середине столетия будут по-прежнему сохраняться значительные различия в вероятностных коэффициентах дожития.

9. В Обзоре 2002 года указывается на ухудшение показателей воздействия эпидемии ВИЧ/СПИДа, таких, как повышение уровня заболеваемости, смертности и увеличение потерь среди населения. Хотя предполагается, что в будущем

вероятность заражения ВИЧ-инфекцией значительно сократится (особенно после 2010 года), долгосрочное воздействие этой эпидемии остается тревожным. В текущем десятилетии число дополнительных смертей в результате СПИДа в 53 наиболее пострадавших странах оценивается на уровне 46 млн. человек и этот показатель, согласно прогнозам, увеличится к 2050 году до 278 млн. человек. Несмотря на разрушительное воздействие эпидемии ВИЧ/СПИДа, численность населения в пострадавших странах будет в целом, как ожидается, более высокой к середине столетия, чем сегодня, что объясняется главным образом тем, что в большинстве из них сохраняются высокие или средние уровни рождаемости. Однако в семи наиболее пострадавших странах на юге Африки, в которых нынешний уровень заболеваемости ВИЧ составляет более 20 процентов, численность населения, согласно прогнозам, увеличится лишь незначительно с 74 миллионов человек в 2000 году до 78 миллионов человек в 2050 году, а для Ботсваны, Лесото, Южной Африки и Свазиленда прогнозируется чистое снижение численности населения.

10. Дальнейшее снижение уровня рождаемости, прогнозируемое в Обзоре 2002 года, приведет к более быстрому старению населения в развивающихся странах по сравнению с показателями предыдущих обзоров. На глобальном уровне число пожилых людей (в возрасте 60 лет или старше) увеличится практически втрое и возрастет с 606 миллионов человек в 2000 году почти до 1,9 миллиарда к 2050 году. Если сегодня в менее развитых регионах проживает шесть из каждых десяти таких пожилых людей, то к 2050 году там будет проживать восемь из каждых десяти пожилых граждан. Еще более заметное увеличение на глобальном уровне ожидается среди самых престарелых людей (в возрасте 80 лет или старше): с 69 миллионов человек в 2000 году до 377 миллионов в 2050 году. В менее развитых регионах их численность увеличится с 32 миллионов до 265 миллионов человек, что к 2050 году вновь означает, что самые престарелые люди будут проживать в менее развитых странах.

11. В более развитых регионах население в возрасте 60 лет или старше на сегодняшний день составляет 19 процентов от общей численности населения; к 2050 году численность таких людей будет составлять 32 процента от общего населения. В более развитых регионах численных пожилых людей превысила численность детей (лиц в возрасте от 0 до 14 лет) и к 2050 году на каждого ребенка будет приходиться по два пожилых человека. В менее развитых регионах доля населения в возрасте 60 лет или старше увеличится с 8 процентов в 2000 году почти до 20 процентов в 2050 году.

12. Увеличение среднего возраста, т.е. возрастной отметки, при которой 50 процентов населения бывает старше и 50 процентов населения моложе этого возраста, означает старение населения. На мировом уровне в период с 1950 года по 2000 год средний возраст увеличился лишь на три года, с 23,6 лет до 26,4 лет, главным образом из-за того, что большинство населения в менее развитых странах остается молодым. В течение следующих 50 лет, однако, средний возраст в мире увеличится почти на 10 лет и достигнет в 2050 году 37 лет. Среди развитых стран в 13 странах ожидается увеличение среднего возраста до 50 лет или более, при этом наиболее высокие показатели будут в Японии, Латвии и Словении (в каждой из которых средний возраст составит около 53 лет), а также в Чешской Республике, Эстонии, Италии и Испании (в каждой из которых средний возраст составит около 52 лет). Кроме того, в эту группу войдут также три развивающиеся страны (Армения, Республика Корея и Сингапур). На другом конце спектра по-прежнему молодое население будут иметь Ангола, Буркина-Фасо, Мали, Нигер, Сомали, Уганда и Йемен, в которых средний возраст в 2050 году составит менее 23 лет.

13. Согласно прогнозам в течение первой половины столетия уровень международной миграции будет оставаться высоким. Ожидается, что в течение следующих 50 лет более развитые регионы будут оставаться странами чистого притока внешних мигрантов при среднем приросте численности мигрантов в количестве около 2 миллионов человек в год. Согласно прогнозам, в среднем за период 2000–2050 годов основными странами чистого прироста внешних мигрантов будут Соединенные Штаты (1,1 миллиона чистых мигрантов в год), Германия (211 тысяч), Канада (173 тысячи), Соединенное Королевство (136 тысяч) и Австралия (83 тысячи), а основными чистыми поставщиками мигрантов будут Китай (-303 тысячи чистого количества мигрантов в год), Мексика (-267 тысяч), Индия (-222 тысячи), Филиппины (-184 тысячи) и Индонезия (-180 тысяч).

Допущения, которые были заложены в Обзор 2002 года

Обзор 2002 года включает шесть вариантов прогнозирования. Четыре варианта отличаются друг от друга по характеру принятых допущений в отношении будущего развития динамики рождаемости. Пятый вариант отличается по характеру принятых допущений в отношении будущего развития динамики смертности и шестой вариант отличается по характеру будущего развития динамики миграции.

Для описания различных вариантов прогнозирования сначала необходимо рассмотреть различные допущения, которые были приняты в зависимости от динамики показателей рождаемости, смертности и международной миграции.

A. Допущения по показателям рождаемости

Допущения по показателям рождаемости описаны с использованием следующих категорий стран:

1. страны с высоким уровнем рождаемости: страны, в которых до 2000 года не наблюдалось снижение рождаемости или был отмечен лишь незначительный спад;
2. страны со средним уровнем рождаемости: страны, в которых в 1995–2000 годах наблюдалось снижение рождаемости, однако ее уровень был по-прежнему выше 2,1 ребенка на одну женщину;
3. страны с низким уровнем рождаемости: страны, в которых в 1995–2000 годах общий уровень рождаемости был равен или был ниже 2,1 ребенка на одну женщину.

Допущения при среднем уровне рождаемости:

1. Общий показатель рождаемости в странах с высоким уровнем рождаемости и со средним уровнем рождаемости будет, согласно допущениям, снижаться по траектории, которая была выведена с использованием моделей снижения рождаемости, разработанных Отделом народонаселения Организации Объединенных Наций с учетом предыдущего опыта всех стран, в которых в период 1950–2000 годов наблюдалась тенденция к снижению рождаемости. В этих моделях устанавливается зависимость между уровнем общей рождаемости в течение какого-то периода времени и средней величиной ожидаемого снижения общей рождаемости в течение следующего периода. В расчетах варианта со средним уровнем рождаемости, если общий показатель рождаемости, который был заложен в модель, падает ниже 1,85 ребенка на одну женщину, величина, которая фактически используется при прогнозировании численности населения, устанавливается на уровне 1,85. Иными словами, показатель 1,85 ребенка на одну женщину представляет собой тот нижний предел, дальше которого при расчетах уровней рождаемости до 2050 года общий показатель рождаемости в странах с высокой и средней рождаемостью не может опускаться. При этом не обязательно, чтобы к 2050 году этот нижний предел достигли все страны. Если применяемая модель динамики рождаемости выдает общий показатель рождаемости выше 1,85 ребенка на одну женщину на 2045–2050 годы, то для прогнозирования численности населения используется эта величина.
2. Общий показатель рождаемости в странах с низкой рождаемостью обычно берется ниже 2,1 ребенка на одну женщину в течение большей части прогнозируемого периода и достигает 1,85 ребенка на одну женщину к 2045–2050 годам. Для стран с низкой рождаемостью, в которых в 1995–2000 годах общий показатель

рождаемости был рассчитан на уровне ниже 1,85 ребенка на одну женщину, прогнозируемый общий показатель рождаемости зачастую продолжает снижаться и затем начинает медленно расти и достигает отметки 1,85 в 2045–2050 годах.

Допущения при высоком уровне рождаемости:

В расчетах варианта с высоким уровнем рождаемости общий показатель рождаемости прогнозируется на 0,5 ребенка выше общего показателя рождаемости в варианте со средним уровнем рождаемости в течение большей части прогнозируемого периода. К 2045–2050 годам общий показатель рождаемости при расчете варианта с высоким уровнем рождаемости будет, следовательно, на половину ребенка выше по сравнению с показателем варианта со средним уровнем рождаемости. Иными словами, страны, достигшие общего показателя рождаемости на уровне 1,85 ребенка на одну женщину в варианте со средним уровнем рождаемости, имеют на конец прогнозируемого периода общий показатель рождаемости, равный 2,35 ребенка на одну женщину при расчете варианта с высоким уровнем рождаемости.

Допущения при низком уровне рождаемости:

При расчете варианта с низким уровнем рождаемости общий показатель рождаемости прогнозируется на 0,5 ребенка ниже общего показателя рождаемости при расчете варианта со средним уровнем рождаемости в течение большей части прогнозируемого периода. К 2045–2050 годам общий показатель рождаемости при расчете варианта с низким уровнем рождаемости будет, следовательно, на половину ребенка ниже по сравнению с показателем варианта со средним уровнем рождаемости. Иными словами, страны, достигшие общего показателя рождаемости на уровне 1,85 ребенка на одну женщину при варианте со средним уровнем рождаемости, имеют на конец прогнозируемого периода общий показатель рождаемости, равный 1,35 ребенка на одну женщину при расчете варианта с низким уровнем рождаемости.

Допущение при неизменном уровне рождаемости:

Для каждой страны общий показатель рождаемости остается неизменным на уровне, который был рассчитан для периода 1995–2000 годов.

B. Допущения по показателям смертности

Допущение при нормальном уровне смертности:

Показатели смертности прогнозируются с использованием моделей изменения средней продолжительности жизни, которые были разработаны Отделом народонаселения Организации Объединенных Наций. Для прогнозирования будущего уровня смертности обычно берутся средние темпы снижения смертности. Однако для стран, серьезно пострадавших от эпидемии ВИЧ/СПИДа, обычно используются медленные темпы снижения смертности для прогнозирования снижения общих рисков смертности, которые не связаны с заболеванием ВИЧ/СПИД.

Кроме того, для стран, которые серьезно пострадали от эпидемии ВИЧ/СПИД, расчеты воздействия ВИЧ/СПИД были сделаны специально с использованием допущений в отношении будущего развития динамики распространения этой эпидемии, т.е. путем прогнозирования ежегодной зараженности ВИЧ-инфекцией. Для расчета параметров определения динамики распространения этой эпидемии в прошлом была использована модель, которая была разработана методической группой ЮНЭЙДС по вопросам оценки, моделирования и прогнозирования[4] и которая применялась с учетом показателей распространенности ВИЧ, полученных ЮНЭЙДС в прошлом. Для большинства стран эта модель пригодна при допущении, что полученные ранее соответствующие параметры остались неизменными. Для целей прогнозирования эти параметры сохранены неизменными до 2010 года. Далее параметр PHI, который отражает количество новых лиц, вошедших в группу высокого риска или подверженных этому заболеванию, будет предположительно снижаться на одну треть с интервалами растущей продолжительности. Кроме того, параметр R, который отражает интенсивность инфекции, будет, по прогнозам, снижаться на 15 процентов через такие же интервалы. Снижение показателя R основывается на допущении, что изменения в поведении среди лиц, подверженных риску инфекции, приведет к снижению шансов передачи этого вируса.

Допущение при неизменном уровне смертности:

Для каждой страны показатель смертности остается неизменным на уровне, который был рассчитан для периода 1995–2000 годов.

C. Допущения в области международной миграции

Допущение при нормальном уровне миграции:

Будущая траектория международной миграции установлена на основе предыдущих расчетных показателей миграции и оценки эффективности государственной политики в странах в отношении регулирования будущих потоков миграции.

Допущение при нулевом уровне миграции:

Для каждой страны внешняя миграция на период 2000–2050 годов установлена на уровне нулевого показателя.

В таблице ниже схематично представлены различные допущения, которые были заложены в расчеты шести вариантов прогнозирования. Как видно из этой таблицы, четыре варианта расчета показателей рождаемости (с низким, средним, высоким и неизменным уровнем рождаемости) используют одинаковые допущения при расчете показателей смертности и международной миграции. Они отличаются друг от друга только в отношении допущений, касающихся расчетов динамики рождаемости. Поэтому сопоставление результатов этих вариантов позволяет произвести оценку воздействия, которые оказывают различные показатели динамики рождаемости на другие демографические параметры.

Кроме четырех вариантов расчета показателей рождаемости были подготовлены также расчеты с использованием варианта с неизменным уровнем смертности и варианта с нулевым уровнем миграции. В оба из них были заложены одинаковые допущения по уровню рождаемости (т.е. средний уровень рождаемости). Помимо этого вариант с неизменным уровнем смертности использует такое же допущение по уровню международной миграции, как и вариант со средним уровнем. Следовательно, результаты варианта с неизменным уровнем смертности можно сравнивать с результатами варианта со средним уровнем для оценки воздействия, которое изменение показателей смертности будет оказывать на другие демографические показатели. Аналогичным образом, вариант с нулевым уровнем миграции отличается от варианта со

[4] Усовершенствованные методы и допущения для оценки распространения эпидемии ВИЧ/СПИДа и ее последствий: Рекомендации методической группы ЮНЭЙДС по вопросам оценки, моделирования и прогнозирования (*AIDS*, vol. 16, pp.W1-W14 (UNAIDS Reference Group on Estimates, Modelling and Projections, 2002)).

средним уровнем лишь по принятому допущению показателей миграции. Поэтому вариант с нулевым уровнем миграции позволяет произвести оценку воздействия, которое будет оказывать миграция при не нулевом уровне на другие демографические параметры.

Варианты прогнозирования с использованием допущений по уровню рождаемости, смертности и международной миграции

	Допущения		
Вариант прогнозирования	*Рождаемость*	*Смертность*	*Международная миграция*
Низкий уровень	Низкий уровень	Нормальный уровень	Нормальный уровень
Средний уровень	Средний уровень	Нормальный уровень	Нормальный уровень
Высокий уровень	Высокий уровень	Нормальный уровень	Нормальный уровень
Неизменный уровень рождаемости	Неизменный уровень	Нормальный уровень	Нормальный уровень
Неизменный уровень смертности	Средний уровень	Неизменный уровень	Нормальный уровень
Нулевой уровень миграции	Средний уровень	Нормальный уровень	Нулевой уровень

Источник: Отдел народонаселения Департамента по экономическим и социальным вопросам Секретариата Организации Объединенных Наций (2003 год). *Мировые демографические перспективы: Обзор 2002 года. Основные выводы*. Нью-Йорк: Организация Объединенных Наций.

Резюме методологических изменений, которые были произведены при составлении Обзора 2002 года

В Обзоре 2002 года были произведены следующие изменения и корректировки в отношении методики составления Обзора 2000:

1. В варианте со средним уровнем рождаемости при прогнозировании будущей динамики рождаемости в странах, имеющих общий показатель рождаемости на уровне более 2,1 ребенка на одну женщину, использовались модели, разработанные с учетом прошлого опыта во всех странах, в которых уже было отмечено снижение рождаемости.

2. Страны, имеющие нынешний общий показатель рождаемости на уровне более 2,1 ребенка на одну женщину, больше не ограничиваются установлением предела дальнейшего снижения рождаемости на уровне 2,1 ребенка на одну женщину. Напротив, показатели рождаемости в этих странах могут продолжать снижаться до тех пор, пока они не достигнут уровня в 1,85 ребенка на одну женщину, т.е. нижнего предела, дальше которого в расчете варианта со средним уровнем рождаемости общий показатель рождаемости не может опускаться. Как и в Обзоре 2000 года не все страны должны достичь общего показателя фертильности на уровне 2,1 или на уровне 1,85 ребенка на одну женщину в течение прогнозируемого периода при расчете варианта со средним уровнем рождаемости.

3. К концу прогнозируемого периода общий показатель рождаемости во всех странах с низкой рождаемостью должен, согласно допущению, выйти на единую отметку на уровне 1,85 ребенка на одну женщину к, а не достигать разных величин, как это было предусмотрено в Обзоре 2000 года.

4. Для всех стран общий показатель рождаемости при расчете вариантов с высоким и низким уровнем рождаемости прогнозируется в показателях, которые, соответственно, на 0,5 ребенка выше и на 0,5 ребенка ниже общего показателя рождаемости в варианте со средним уровнем рождаемости. В Обзоре 2000 года для стран с низкой рождаемостью применялась разница в 0,4 ребенка.

5. Оценка и прогнозирование воздействия ВИЧ/СПИД было пересмотрено с использованием модели, которая была разработана методической группой ЮНЭЙДС по вопросам оценки, моделирования и прогнозирования. Применение этой новой модели позволяет выработать гипотезы прогнозирования на основе параметров, которые учитывают динамику распространения этой эпидемии.

Prefacio

El presente informe contiene el resumen ejecutivo de los resultados de la *Revisión de 2002* de las estimaciones y proyecciones oficiales sobre población en el mundo que prepara la División de Población del Departamento de Asuntos Económicos y Sociales de la Secretaría de las Naciones Unidas. Presenta además una perspectiva general de las hipótesis de fecundidad, mortalidad y migración en que se basan las proyecciones y un resumen de los cambios y ajustes introducidos en la *Revisión de 2002* en relación con los procedimientos seguidos en la *Revisión de 2000*. La *Revisión de 2002* es la 18ª serie de estimaciones y proyecciones demográficas mundiales que emprende la División de Población desde 1950.

Los resultados completos de la *Revisión de 2002* se presentarán en una serie de tres volúmenes. En el primer volumen[1] figuran los cuadros completos en que se recogen los principales indicadores demográficos correspondientes a cada país respecto del período 1950-2050; el segundo volumen[2] contendrá las distribuciones por edad y sexo de la población de cada país respecto del período 1950-2005; y el tercer volumen[3] se dedicará a hacer un análisis de los resultados obtenidos.

Como los datos estarán también disponibles en formato digital, los usuarios interesados podrán adquirir el CD-Rom que contiene los resultados principales de la *Revisión de 2002*. En el sitio de la División de Población en la Web (la dirección figura más adelante) hay una descripción de los datos que contiene el CD-Rom y un formulario de pedido.

La *Revisión de 2002* es responsabilidad de la División de Población. Su preparación se vio facilitada por la colaboración de las comisiones regionales, los organismos especializados y otros órganos pertinentes de las Naciones Unidas con la División de Población. La División agradece también a la División de Estadística del Departamento de Asuntos Económicos y Sociales por su permanente cooperación.

En el sitio de la División de Población en la Web, en la dirección www.unpopulation.org, se pueden consultar resultados seleccionados de la *Revisión de 2002* así como información demográfica de diversa índole. Para mayor información acerca de la *Revisión de 2002*, se ruega dirigirse al Sr. Joseph Chamie, Director de la División de Población, Naciones Unidas, Nueva York, NY 10017, Estados Unidos de América (fax: 1 212 963 2147).

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[1] *World Population Prospects: The 2002 Revision, vol. I, Comprenhensive Tables* (publicación de las Naciones Unidas, de próxima aparición).

[2] *World Population Prospects: The 2002 Revision, vol. II, Sex and Age Distribution of the World Population* (publicación de las Naciones Unidas, de próxima aparición).

[3] World Population Prospects: The 2002 Revision, vol. III. Analytical Report (publicación de las Naciones Unidas, de próxima aparición).

Resumen ejecutivo

La R*evisión de 2002* es la 18ª serie de estimaciones y proyecciones demográficas oficiales de las Naciones Unidas que prepara la División de Población del Departamento de Asuntos Económicos y Sociales de la Secretaría de las Naciones Unidas, estimaciones y proyecciones que se utilizan en todo el sistema de las Naciones Unidas como base para actividades en que se precisa información demográfica.

La *Revisión de 2002* de las estimaciones y proyecciones demográficas oficiales de las Naciones Unidas abre nuevos caminos en lo que concierne a las hipótesis formuladas sobre la fecundidad humana en el futuro y el efecto de la epidemia del VIH/SIDA. Por primera vez, las proyecciones de la División de Población indican que, en algún momento del siglo XXI, en la mayoría de los países en desarrollo los niveles de fecundidad caerán probablemente por debajo de 2,1 hijos por mujer, el nivel necesario para asegurar el reemplazo de la población a largo plazo. Según las proyecciones de la variante media indicadas en la *Revisión de 2002*, en tres de cada cuatro países de las regiones menos desarrolladas se registrarán para 2050 tasas de fecundidad por debajo del nivel de reemplazo.

Este cambio en las hipótesis representa la tercera y última fase de un proceso de evaluación de las tendencias futuras de la fecundidad. En 1997 la División de Población convocó una reunión de expertos para examinar las directrices relativas a la proyección de la fecundidad en países con tasas de fecundidad por debajo del nivel de reemplazo[1]. Como resultado de las deliberaciones de esa reunión, en la *Revisión de 1998* la tasa de fecundidad de los países de fecundidad baja se mantuvo por debajo del nivel de reemplazo durante todo el período de las proyecciones. En 2001, se convocó una reunión de expertos similar para examinar las perspectivas de los países donde la fecundidad todavía no había empezado a disminuir o donde la disminución apenas estaba comenzando[2]. Ya en las proyecciones hechas en la *Revisión de 2000* se indicaba que la fecundidad de esos países disminuiría más lentamente de lo previsto en la *Revisión de 1998*, y en la *Revisión de 2002* el ritmo de disminución proyectado no será mucho más rápido. Por último, en 2002 una reunión de expertos examinó directrices sobre la forma de proyectar la fecundidad futura de países de fecundidad intermedia, o sea, aquellos que aunque ya habían experimentado una disminución significativa de la fecundidad, no habían alcanzado todavía tasas por debajo del nivel de reemplazo[3]. Las proyecciones de la fecundidad recogidas en la *Revisión de 2002* reflejan las conclusiones a que se llegó en esa reunión.

Un segundo e importante cambio en la *Revisión de 2002* consiste en que prevé un efecto más grave y prolongado, en comparación con revisiones anteriores, de la epidemia del VIH/SIDA en la mayoría de los países afectados. Se han preparado explícitamente modelos del efecto de la enfermedad en 53 países, ocho más que los 45 examinados en la *Revisión de 2000*. Se supone que la dinámica de la epidemia se mantendrá estable hasta 2010. A partir de ese momento, los niveles de prevalencia disminuirán en la medida en que se produzcan modificaciones del com-

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1 Fecundidad por debajo del nivel de reemplazo, *Boletín de Población de las Naciones Unidas*, edición especial No. 40/41, 1999 (Naciones Unidas, 2000).

2 Seminario sobre perspectivas de disminución de la fecundidad en países donde ésta es elevada, Nueva York, 9 a 11 de julio de 2001 (Naciones Unidas, ESA/P/WP.167).

3 Terminación de la transición de la fecundidad (Naciones Unidas, ESA/P/WP.1/Rev.1).

portamiento que reduzcan las tasas de ingreso al grupo de alto riesgo así como las posibilidades de infección entre los que siguen a prácticas de alto riesgo. Los niveles resultantes de prevalencia del VIH permanecerán relativamente altos hasta 2010 y luego disminuirán, si bien seguirán siendo considerables hasta mediados del siglo.

Como consecuencia de estos cambios, en la *Revisión de 2002* las proyecciones de la población mundial para 2050 son más bajas que las hechas en la *Revisión de 2000*: 8.900 millones de habitantes en lugar de 9.300 millones, de acuerdo con la variante media. Cerca de la mitad de la diferencia de 400 millones en esas cifras proyectadas de la población se debe al aumento del número de muertes consideradas en la proyección, derivadas en su mayoría de niveles proyectados más altos de prevalencia del VIH. La otra mitad de la diferencia refleja la reducción del número proyectado de nacimientos, como resultado principalmente de los niveles más bajos de fecundidad previstos para el futuro.

Los resultados de la *Revisión de 2002* confirman conclusiones fundamentales de revisiones anteriores y ofrecen nuevas percepciones de la sensibilidad de las proyecciones demográficas a las tendencias futuras de la fecundidad y la mortalidad. A continuación se resumen las principales conclusiones de la *Revisión de 2002*.

1. A pesar de los niveles de fecundidad más bajos proyectados y de los mayores riesgos de mortalidad a que se verán expuestas algunas poblaciones, se prevé que la población del mundo aumentará en 2.600 millones de habitantes durante los próximos 47 años, o sea, de 6.300 millones hoy día a 8.900 millones en 2050. Sin embargo, el cumplimiento de esas proyecciones está supeditado al acceso garantizado de las parejas a la planificación familiar y al éxito que tengan las campañas para contrarrestar la difusión actual de la epidemia del VIH/SIDA en la reducción de la tendencia de crecimiento de la enfermedad. Las posibilidades de un aumento considerable de la población siguen siendo altas. De acuerdo con los resultados de la *Revisión de 2002*, si la fecundidad se mantiene constante a los niveles actuales en todos los países, la población total del planeta podría aumentar en más del doble para 2050, llegando a los 12.800 millones de habitantes. Incluso una reducción de la fecundidad algo más lenta que la proyectada en la variante media significaría miles de millones de habitantes más. Así por ejemplo, si las mujeres tuvieran, en promedio, aproximadamente medio hijo más de lo previsto de acuerdo con la variante media, la población mundial podría aumentar a 10.600 millones de habitantes en 2050, como lo indican las proyecciones hechas en función de la variante alta. La variante baja, en la que las mujeres tienen, en promedio, medio hijo menos que en la variante media, daría por resultado en 2050 una población de 7.400 millones de habitantes (véase la figura en la página siguiente).

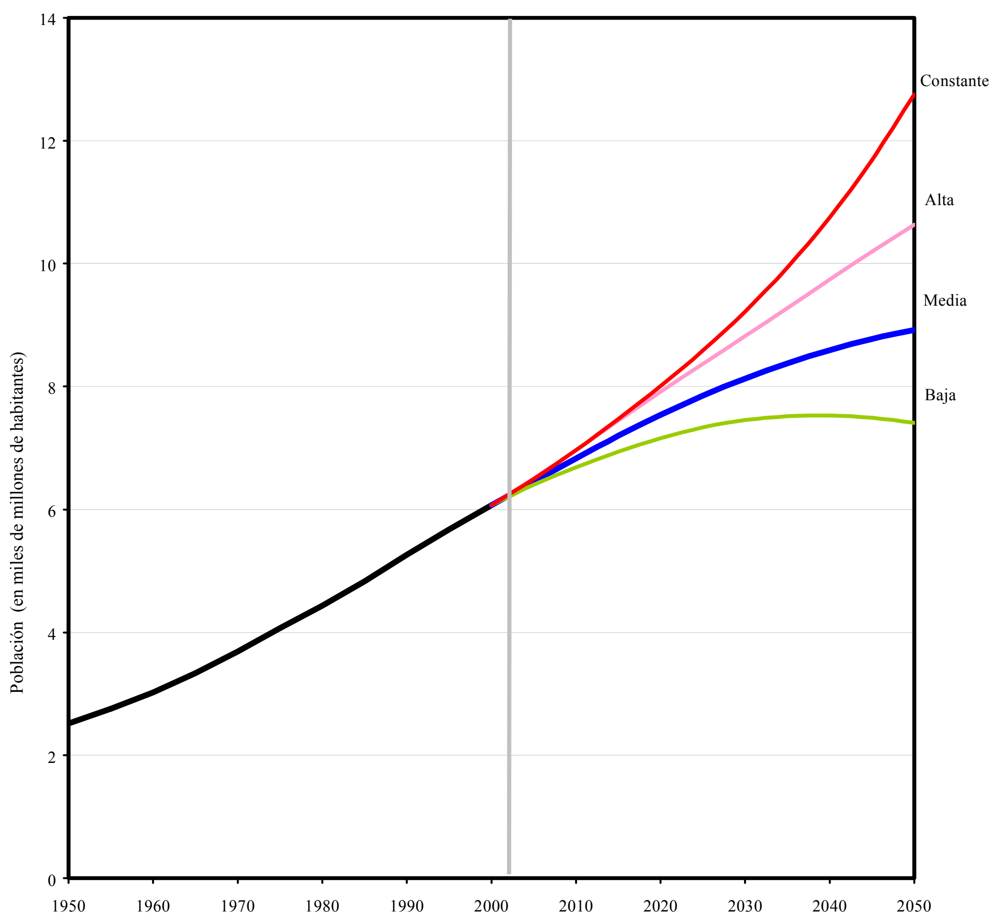
2. La población mundial crece actualmente a una tasa del 1,2% anual, lo que supone un aumento neto de 77 millones de habitantes por año. La mitad de ese incremento anual corresponde a seis países: la India 21%; China 12%; el Pakistán 5%, Bangladesh, Nigeria y los Estados Unidos de América 4% cada uno.

3. En los resultados de la Revisión de 2002 se observa claramente la creciente diversidad de la dinámica demográfica entre los países y regiones del mundo. Mientras que hoy día la población de las regiones más desarrolladas del mundo aumenta a una tasa anual del 0,25%, la de las regiones menos desarrolladas aumenta aproximadamente seis veces más rápido, a una tasa anual del 1,46%, y el subconjunto de los 49 países menos adelantados experimenta un crecimiento demográfico aún más rápido (2,4% al año). Esas diferencias, aunque un tanto atenuadas, persistirán

hasta el año 2050. Para entonces, la población de las regiones más desarrolladas habrá estado disminuyendo durante 20 años, mientras que la población de las regiones menos desarrolladas continuará todavía aumentando a una tasa anual del 0,4%. Y, lo que es más importante, la población de los países menos adelantados crecerá probablemente a una sólida tasa anual de más del 1,2% en el período 2045-2050.

4. Como resultado de esas tendencias, se prevé que la población de las regiones más desarrolladas, que es actualmente de 1.200 millones de habitantes, habrá de cambiar poco durante los próximos 50 años. Además, puesto que se prevé que los niveles de fecundidad de la mayoría de los países desarrollados se mantendrán por debajo del nivel de reemplazo durante el período 2000-2050, para mediados de siglo la población proyectada de 30 países desarrollados será menor que en la actualidad (por ejemplo, 14% menos en el Japón; 22% menos en Italia y entre el 30% y el 50% menos en los casos de Bulgaria, Estonia, la Federación de Rusia, Georgia, Letonia y Ucrania).

Población estimada y proyectada del mundo por variante de proyección, 1950-2050



Fuente: División de Población del Departamento de Asuntos Económicos y Sociales de la Secretaría de las Naciones Unidas (2003). *World Population Prospects: The 2002 Revisión. Highlights.* Nueva York: Naciones Unidas.

5. Según esas proyecciones, la población de las regiones menos desarrolladas aumentará constantemente, pasando de 4.900 millones de habitantes en 2000 a 7.700 millones en 2050 (variante media). Se prevé un crecimiento particularmente rápido entre los países menos adelantados, cuya población aumentará según las proyecciones de 668 millones a 1.700 millones de habitantes, no obstante el hecho de que las proyecciones indican que su fecundidad disminuirá marcadamente en el futuro (de 5,1 hijos por mujer hoy en día a 2,5 hijos por mujer en el período 2045-2050). En vista de las tasas sostenidas de crecimiento anual superiores al 2,5% entre 2000 y 2050, las proyecciones indican que las poblaciones de Burkina Faso, Malí, Níger, Somalia, Uganda y el Yemen se cuadruplicarán, pasando de 85 millones a 369 millones en total.

6. Se prevén grandes incrementos demográficos entre los países más poblados, aun cuando las proyecciones de sus niveles de fecundidad sean bajas. Así por ejemplo, se prevé que la mitad del aumento proyectado de la población del mundo corresponderá durante el período 2000-2050, a ocho países (la India, el Pakistán, Nigeria, los Estados Unidos de América, China, Bangladesh, Etiopía y la República Democrática del Congo, en orden de crecimiento demográfico).

7. En los últimos 50 años se ha observado una notable reducción de los niveles de fecundidad de las regiones menos desarrolladas, cuya tasa de fecundidad total pasó de 6 a 3 hijos por mujer. Se prevé que en los próximos 50 años en las regiones menos desarrolladas la fecundidad alcanzará el nivel de reemplazo entre 2030 y 2035, y a partir de ese momento estará por debajo de ese nivel. Sin embargo, se prevé que en las regiones menos desarrolladas la fecundidad media estará todavía ligeramente por encima de 2 hijos por mujer en el período 2045-2050, debido principalmente a la heterogeneidad creciente de la dinámica demográfica entre los países en desarrollo. Así por ejemplo, se prevé que los 49 países menos adelantados tendrán una fecundidad total de 2,5 hijos por mujer en el período 2045-2050, muy por encima del nivel de reemplazo. En consecuencia, en la *Revisión de 2002* se prevé que para mediados de siglo habrá un número considerable de países en los que la transición a tasas de fecundidad por debajo del nivel de reemplazo no se habrá completado.

8. La diversidad creciente es evidente también con respecto a los futuros niveles de mortalidad. A nivel mundial, es probable que la esperanza de vida al nacer aumente de 65 años en la actualidad a 74 años en el período 2045-2050. Pero mientras que en las regiones más desarrolladas, la esperanza de vida, estimada actualmente en 76 años, aumentará a 82 años, las de las regiones menos desarrolladas permanecerá a un nivel considerablemente bajo, alcanzando los 73 años sólo para mediados del siglo (en comparación con 63 años en la actualidad). En el grupo de los países menos adelantados, muchos de los cuales se ven considerablemente afectados por la epidemia del VIH/SIDA, la esperanza de vida actual está todavía por debajo de los 50 años y no se prevé que supere los 67 años para 2050. Por consiguiente, se prevé que, aunque la disparidad en la esperanza de vida entre los diferentes grupos de países será reducida, para mediados de siglo seguirán siendo evidentes importantes diferencias en las probabilidades de supervivencia.

9. La *Revisión de 2002* indica que el efecto de la epidemia del VIH/SIDA ha empeorado en términos de mayor morbilidad, mortalidad y pérdida de población. Aun-

que se supone que la probabilidad de quedar infectado por el VIH disminuirá considerablemente en el futuro (sobre todo después de 2010), el efecto a largo plazo de la epidemia seguirá siendo funesto. Se estima que durante el decenio en curso el aumento del número de muertes por causa del SIDA entre los 53 países más afectados será de 46 millones, cifra que según las proyecciones aumentará a 278 millones para el año 2050. No obstante el efecto devastador de la epidemia de VIH/SIDA, se prevé que, en general, a mediados de siglo la población de los países afectados será más numerosa que actualmente, debido principalmente a que la mayoría de ellos mantienen niveles de fecundidad entre altos y moderados. Sin embargo, en el caso de los siete países más afectados de África meridional, donde la prevalencia actual del VIH es de cerca del 20%, la población proyectada refleja sólo un ligero aumento, de 74 millones de habitantes en 2000 a 78 millones en 2050, y las proyecciones indican la clara reducción de la población en Botswana, Lesotho, Sudáfrica y Swazilandia.

10. Las reducciones más profundas de la fecundidad proyectadas en la *Revisión de 2002* se traducen en el envejecimiento de la población de los países en desarrollo a un ritmo más rápido que el previsto en revisiones anteriores. A nivel mundial, el número de las personas de edad (60 años o más) prácticamente se triplicará, al pasar de 606 millones en 2000 a casi 1.900 millones en 2050. Mientras que hoy en día 6 de cada 10 de esas personas de edad viven en regiones menos desarrolladas, la cifra pasará a ser de 8 de cada 10 en 2050. Se prevé un aumento aún más marcado en el número de ancianos (80 años o más) a nivel mundial: de 69 millones en 2000 a 377 millones en 2050. En las regiones menos desarrolladas, el incremento será de 32 millones a 265 millones, lo que supone una vez más que para 2050 la mayoría de los ancianos vivirá en países menos desarrollados.

11. En las regiones más desarrolladas, la población de 60 o más años de edad constituye actualmente el 19% de la población; en 2050 representará el 32%. La población de personas de edad de las regiones más desarrolladas ha sobrepasado ya a la población infantil (personas de entre 0 y 14 años de edad) y en 2050 habrá 2 personas de edad por cada niño. En las regiones menos desarrolladas, la proporción de la población de 60 o más años de edad aumentará del 8% en 2000 a cerca del 20% en 2050.

12. Los aumentos de la edad mediana, la edad con respecto a la cual la mitad de la población es más vieja y la mitad más joven, reflejan el envejecimiento de la población. A nivel mundial, la edad mediana aumentó escasamente en tres años entre 1950 y 2000, de 23,6 años a 26,4 años, debido principalmente a que en la mayoría de los países menos desarrollados la población siguió siendo joven. Durante los próximos 50 años o más, sin embargo, la edad mediana en el mundo aumentará en cerca de 10 años, hasta alcanzar los 37 años en 2050. Entre los países desarrollados, se prevé que 13 tendrán una edad mediana de 50 años y a la cabeza de la lista estarán Eslovenia, el Japón, y Letonia (con una edad mediana de cerca de 53 años cada uno) y España, Estonia, Italia y la República Checa, (con una edad mediana de cerca de 52 años cada uno). Además, tres países en desarrollo (Armenia, la República de Corea y Singapur) figurarán también en ese grupo. Al otro extremo del espectro, se prevé que Angola, Burkina Faso, Malí, Níger, Somalia, Uganda y Yemen tendrán poblaciones aún jóvenes, siendo la edad mediana inferior a 23 años en 2050.

13. De acuerdo con las proyecciones, la migración internacional se mantendrá alta durante la primera mitad del siglo. Se prevé que las regiones más desarrolladas seguirán siendo receptoras netas de migrantes internacionales, con un aumento medio de cerca de 2 millones de inmigrantes por año durante los próximos 50 años. Al calcular el promedio a lo largo del período 2000-2050, las proyecciones indican que los principales receptores netos de migrantes internacionales serán los Estados Unidos (1,1 millones de migrantes netos por año), Alemania (211.000), Canadá (173.000), el Reino Unido (136.000) y Australia (83.000), mientras que los principales originadores netos de migrantes internacionales serán China (-303.000 migrantes netos por año), México (-267.000), India (-222.000), Filipinas (-184.000) e Indonesia (-80.000).

Hipótesis en que se basa la *Revisión de 2002*

La *Revisión de 2002* incluye seis variantes de proyección. Cuatro de ellas difieren entre sí en lo que respecta a las hipótesis formuladas en relación con el curso de la fecundidad en el futuro. La quinta difiere con respecto a las hipótesis formuladas acerca del curso futuro de la mortalidad y la sexta con respecto al curso futuro de la migración.

Para describir las diferentes variantes de proyección, a continuación se exponen en primer lugar las diversas hipótesis formuladas con respecto a la fecundidad, la mortalidad y la migración internacional.

A. Hipótesis de fecundidad

Las hipótesis de fecundidad se describen en función de los siguientes grupos de países:

1. *Países de fecundidad alta:* países en los que hasta 2000 no había habido ninguna reducción de la fecundidad o sólo una disminución incipiente;

2. *Países de fecundidad media:* países donde la fecundidad ha venido disminuyendo pero cuyo nivel se mantuvo todavía por encima de 2,1 hijos por mujer en el período 1995-2000;

3. *Países de fecundidad baja:* países cuya fecundidad total se situaba en o por debajo de 2,1 hijos por mujer en el período 1995-2000.

Hipótesis de fecundidad media

1. Se supone que en los países de fecundidad alta y fecundidad media la fecundidad total disminuirá, siguiendo la tendencia deducida de modelos de disminución de la fecundidad establecidos por la División de Población de las Naciones Unidas sobre la base de la experiencia previa de todos los países en los que la fecundidad disminuyó durante el período 1950-2000. Los modelos relacionan el nivel de fecundidad total durante un período con la disminución media prevista de la fecundidad total durante el período siguiente. Con arreglo a la variante media, siempre que la fecundidad total proyectada por un modelo cae por debajo de 1,85 hijos por mujer, el valor efectivamente utilizado en la proyección de la población se fija en 1,85. En otras palabras, 1,85 hijos por mujer representa el valor mínimo por debajo del cual no se permite que caiga la fecundidad total de los países de fecundidad alta y media antes de 2050. Sin embargo, no es necesario que todos los países alcancen ese valor mínimo para el año 2050. Cuando el modelo de cambio de la fecundidad utilizado arroja una fecundidad total superior a 1,85 hijos por mujer respecto del período 2045-2050, ese valor se utiliza en la proyección de la población.

2. Se supone que en los países de fecundidad baja la fecundidad total se mantendrá en general, por debajo de 2,1 hijos por mujer durante la mayor parte del período de la proyección y alcanzará los 1,85 hijos por mujer en el período 2045-2050. En el caso de los países de fecundidad baja cuya fecundidad total en el período 1995-2000 se estimó por debajo de 1,85 hijos por mujer, la fecundidad total proyectada con frecuencia disminuye aún más antes de aumentar lentamente hasta alcanzar la cifra de 1,85 en el período 2045-2050.

Hipótesis de fecundidad alta

De acuerdo con la variante alta, la fecundidad total proyectada se mantendrá en 0,5 hijos por encima de la fecundidad total de la variante media durante la mayor parte del período de la proyección. Por consiguiente, en el período 2045-2050 en la variante alta la fecundidad total será superior en medio hijo a la de la variante media. O sea que los países que alcancen una fecundidad total de 1,85 hijos por mujer en la variante media tienen en la variante alta una fertilidad total de 2,35 hijos por mujer a finales del período de la proyección.

Hipótesis de fecundidad baja

De acuerdo con la variante baja, la fecundidad total proyectada se mantendrá en 0,5 hijos por debajo de la fecundidad total de la variante media durante la mayor parte del período de la proyección. Por consiguiente, en el período 2045-2050 la fecundidad total en la variante baja será inferior en medio hijo a la de la variante media. O sea que los países que alcancen una fecundidad total de 1,85 hijos por mujer en la variante media tienen en la variante baja una fecundidad total de 1,35 hijos por mujer a finales del período de la proyección.

Hipótesis de fecundidad constante

En cada país la fecundidad total se mantiene constante al nivel estimado para el período 1995-2000.

B. Hipótesis de mortalidad

Hipótesis de mortalidad normal

La mortalidad se proyecta sobre la base de los modelos del cambio de la esperanza de vida preparados por la División de Población de las Naciones Unidas. Para proyectar los niveles de mortalidad futuros se suele utilizar el ritmo medio de disminución de la mortalidad. Sin embargo, en el caso de los países altamente afectados por la epidemia del VIH/SIDA se ha utilizado por lo general el ritmo lento de disminución de la mortalidad para proyectar la reducción de riesgos de mortalidad general no relacionados con el VIH/SIDA.

Además, respecto de los países altamente afectados por la epidemia del VIH/SIDA, las estimaciones del efecto del VIH/SIDA se hacen explícitamente mediante hipótesis acerca del curso futuro de la epidemia, es decir, mediante la proyección de la incidencia anual de la infección por el VIH. Se ha utilizado el modelo desarrollado por el Grupo de Referencia del ONUSIDA sobre estimaciones, modelos y proyecciones[4], para ajustar las estimaciones previas de prevalencia del VIH obtenidas del ONUSIDA, a fin de deducir los parámetros que han determinado la dinámica de la epidemia hasta el momento. En el caso de la mayoría de los países, el modelo se ajusta partiendo del supuesto de que los parámetros pertinentes se han mantenido constantes en el pasado. A efectos de la proyección, los parámetros se mantienen constantes hasta 2010. A partir de ese año, las proyecciones indican que el parámetro FI (Φ), que refleja la tasa de ingreso de nuevos indi-

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[4] Improved methods and assumptions for estimation of the HIV/AIDS epidemic and its impact: Recommendations of the UNAIDS Reference Group on Estimates, Modelling and Projections. *AIDS*, vol. 16, págs. W1-W14 (ONUSIDA Grupo de Referencia del ONUSIDA sobre estimaciones, modelización y proyecciones, 2002).

viduos en el grupo de alto riesgo o vulnerable, disminuirá en un tercio a lo largo de intervalos de duración creciente. Además las proyecciones señalan que el parámetro R, que representa la intensidad de la infección, disminuirá en el 15% a lo largo de los mismos intervalos. La reducción de R se basa en la hipótesis de que los cambios de comportamiento entre quienes están expuestos al riesgo de la infección reducirán las posibilidades de transmisión del virus.

Hipótesis de mortalidad constante

En cada país la mortalidad se mantiene constante al nivel estimado para el período 1995-2000.

C. Hipótesis de migración internacional

Hipótesis de migración normal

El curso futuro de la migración internacional se determina sobre la base de las estimaciones pasadas de la migración internacional y de la evaluación de las posturas de política de los países con respecto a las corrientes futuras de migración internacional.

Hipótesis de migración cero

En cada país la migración internacional se fija en cero para el período 2000-2050.

El cuadro que figura más adelante presenta de manera esquemática las diferentes hipótesis en que se basan las seis variantes de proyección. Como se indica, las cuatro variantes de fecundidad (fecundidad baja, media, alta y constante) comparten las mismas hipótesis con respecto a la mortalidad y la migración internacional. La comparación de sus resultados permite, por consiguiente, la evaluación de los efectos que diferentes cursos de la fecundidad tienen sobre otros parámetros demográficos.

Además de las cuatro variantes de fecundidad, se han preparado también una variante de mortalidad constante y una variante de migración cero. Ambas se apoyan en la misma hipótesis de fecundidad (o sea, la fecundidad media). Por otra parte, la variante de mortalidad constante tiene la misma hipótesis de migración internacional que la variante media. En consecuencia, los resultados de la variante de mortalidad constante se pueden comparar con los de la variante media para determinar el efecto que los cambios en la mortalidad tienen sobre otros parámetros demográficos. De igual manera, la variante de migración cero difiere de la variante media únicamente con respecto a la hipótesis de base relacionada con la migración. Por lo tanto, la variante de migración cero permite la evaluación del efecto que la migración por encima o por debajo de cero tiene sobre otros parámetros demográficos.

Variantes de la proyección en función de las hipótesis de fecundidad, mortalidad y migración internacional

	Hipótesis		
Variante de proyección	*Fecundidad*	*Mortalidad*	*Migración internacional*
Baja	Baja	Normal	Normal
Media	Media	Normal	Normal
Alta	Alta	Normal	Normal
Fecundidad constante	Constante	Normal	Normal
Mortalidad constante	Media	Constante	Normal
Migración cero	Media	Normal	Cero

Fuente: División de Población del Departamento de Asuntos Económicos y Sociales de la Secretaría de las Naciones Unidas (2003). *World Population Prospects: The 2002 Revision. Highlights.* Nueva York: Naciones Unidas.

Resumen de los cambios metodológicos introducidos en la *Revisión de 2002*

En la *Revisión de 2002* se introdujeron los siguientes cambios y ajustes en relación con los procedimientos seguidos en la *Revisión de 2000*:

1. En la variante media, el curso futuro de la fecundidad para los países con una fecundidad total superior a 2,1 hijos por mujer se proyecta utilizando modelos derivados de la experiencia anterior de todos los países en los que la fecundidad ha disminuido ya.

2. Los países con una fecundidad total actual superior a 2,1 hijos por mujer ya no se verán en la necesidad de detener la disminución futura de su fecundidad en 2,1 hijos por mujer. Por el contrario, sus niveles de fecundidad pueden continuar disminuyendo hasta llegar a 1,85 hijos por mujer, el valor mínimo por debajo del cual no se permite que caiga la fecundidad total en la variante media. Como ocurrió en la *Revisión de 2000*, en la variante media no es necesario que todos los países alcancen una fecundidad de 2,1 ó 1,85 hijos por mujer durante el período de la proyección.

3. Se supone que la fecundidad total de todos los países de fecundidad baja convergirá en 1,85 hijos por mujer para finales del período de la proyección en lugar de alcanzar diferentes valores objetivo como ocurría en la *Revisión de 2000*.

4. En todos los países, la fecundidad total en las variantes alta y baja se proyecta en 0,5 hijos por encima y 0,5 hijos por debajo, respectivamente, de la fecundidad total de la variante media. En la *Revisión de 2000,* se utilizó una diferencia de 0,4 de hijo en el caso de los países de fecundidad baja.

5. Se modificó la estimación y proyección del efecto del VIH/SIDA para integrar el modelo elaborado por el Grupo de Referencias del ONUSIDA sobre estimaciones, modelización y proyecciones. La utilización del nuevo modelo permite la formulación de hipótesis de proyección sobre la base de parámetros que son significativos con respecto a la dinámica de la epidemia.

INTRODUCTION

The United Nations Department of Economic and Social Affairs' Population Division has been preparing the official United Nations estimates and projections of the world's population since 1951. The *2002 Revision* of *World Population Prospects* is the eighteenth set of global estimates and projections completed by the Population Division since that date. Until 1978, revisions of the global set of population projections were published every five years, but since that date the Population Division has issued revisions of the estimates and projections for all the countries and areas of the world every two years. The results of the *2002 Revision* are published in three volumes. Volumes I and II of this set were issued in 2003. The present volume, the third in the set, is devoted to an analysis of the results, the methodological underpinnings and the documentation of the data sources of the *2002 Revision*. In addition, the results of the *2002 Revision* are available in digital form on CD-Rom. A form printed at the end of this volume contains instructions on how to obtain the data on CD.

The data produced for each revision of *World Population Prospects* represent a unique set of comprehensive, consistent and internationally comparable estimates and projections of population by age and sex as well as estimates and projections of mortality and fertility schedules by age and sex, and estimates of net international migration for each country. Such data serve as a basis for the elaboration of sectoral estimates and projections produced by the various agencies and bodies of the United Nations system. The population estimates and projections prepared by the Population Division provide a solid foundation not only for the derivation of sectoral projections but also for the global analysis of different aspects of population dynamics and for the analysis of interrelations between other socio-economic processes and population dynamics. Given the numerous uses of the Population Division's estimates and projections as well as the fact that future world population trends are inherently uncertain, it is important to ensure that the official set of population estimates and projections of the United Nations system are kept as up-to-date as possible. This goal is met by revising the official set of projections every two years and, in the process, incorporating the most recent demographic information available for each country of the world.

For the 192 countries or areas of the world that had an estimated population of 100,000 inhabitants or more for 2000, the projections are carried out using the cohort-component method, which requires explicit assumptions on future fertility, mortality and migration trends for each country. For the 36 countries or areas that in 2000 had less than 100,000 inhabitants, projections of the total population are made on the basis of assumptions about the future rate of population growth. Such methodology does not require or produce information on future fertility, mortality and migration levels.

Estimates and projections are made and presented for each country separately. The estimates cover the period 1950-2000 and the projections the period 2000-2050. Results are also presented in terms of the world as a whole, its 21 regions and six major areas. The sets of countries that constitute each region and major area are presented in section E of this introduction. In addition, countries are organized by level of development. These sets of countries are grouped into more developed regions and less developed regions, as well as into the group of least developed countries. The more developed regions and less developed regions are mutually exclusive sets of countries that together constitute the whole world. The more developed regions include all countries in Europe and Northern America plus Australia, New Zealand and Japan. The less developed regions include all other countries or areas in the world. The list of least developed countries as established by the United Nations General Assembly is also presented in section E, below.

Normally, the revisions of *World Population Prospects* have included the results of three projection variants prepared for each of the countries or areas whose populations are projected using the cohort-component method. These variants differ from one another only on the future course of fertility. That is, they all incorporate the same assumptions about future trends in mortality and international migration. These variants are known as the low-fertility, medium-fertility and high-fertility variants, or low, medium and high for short. The low, medium and high variants constitute the core of the official estimates and projections of the United Nations. They encompass the likely future path of population growth for each country or area of the world. The low and high variants provide lower and upper bounds for that growth. The medium variant is a useful central reference for trends over the longer term.

In the *2002 Revision,* four other projection variants have been calculated for each country. They are the instant-replacement, constant-fertility, constant-mortality and zero-migration variants. These variants have been produced for illustrative purposes, to permit an assessment of the effects that future assumptions on fertility, mortality and international migration in the medium variant have in relation to these variants. For that reason and in order to make clear that the new variants are illustrative and not adequate embodiments of what future trends might actually be, these variants are referred to as “scenarios” instead of variants. The results of the four scenarios will not be discussed at length in this volume; results are included on the CD-ROM.

The results for each variant reflect the assumptions that underlie it. These assumptions are described in section B of this introduction. The next section summarizes the key findings of the *2002 Revision.*

A. KEY RESULTS OF THE *2002 REVISION*

The results of the *2002 Revision* confirm key conclusions from previous revisions and provide new insights into the sensitivity of population projections to future trends in fertility and mortality. The main findings of the *2002 Revision* are summarized below.

Despite the lower fertility levels projected and the increased mortality risks to which some populations will be subject, the population of the world is expected to increase by 2.6 billion in 2050, from 6.3 billion today to 8.9 billion in 2050. This figure illustrates that there is still high a potential for population growth. In a long-term perspective, however, as peak the of global population growth rates has already been passed, net additions to the world population are declining. Table 1 illustrates the long-term population dynamics by listing the years at which another billion people were added or are projected to be added to the world.

However, the realization of these projections is contingent on ensuring that couples have access to family planning and that efforts to arrest the current spread of the HIV/AIDS epidemic are successful in reducing its growth momentum. The potential for considerable population increase remains high. According to the results of the *2002 Revision*, if fertility were to remain constant in all countries at current levels, the total population of the globe could more than double by 2050, reaching 12.8 billion. Even a somewhat slower reduction of fertility than that projected in the medium variant would result in additional billions of people. Thus, if women were to have, on average, about half a child more than according to the medium variant, world population might rise to 10.6 billion in 2050 as projected in the high variant. The low variant, where women have, on

TABLE 1. MILESTONES IN WORLD POPULATION

Type of data	*World population in billions*	*Year when reached*	*Number of years it took to increase by one billion*
Estimates	1	1804	
	2	1927	123
	3	1960	33
	4	1974	14
	5	1987	13
	6	1999	12
Medium projection variant.........	7	2012	13
	8	2027	15
	8.9	2050	more than 23

average, half a child less than in the medium variant, would result in a 2050 population of 7.4 billion.

World population is currently growing at a rate of 1.2 per cent annually, implying a net addition of 77 million people per year. Six countries account for half of that annual increment: India for 21 per cent; China for 12 per cent; Pakistan for 5 per cent; Bangladesh, Nigeria and the United States of America for 4 per cent each.

The increasing diversity of population dynamics among the countries and regions of the world is evident in the results of the *2002 Revision*. Whereas today the population of the more developed regions of the world is rising at an annual rate of 0.25 per cent, that of the less developed regions is increasing nearly six times as fast, at 1.46 per cent, and the subset of the 49 least developed countries is experiencing even more rapid population growth (2.4 per cent per year). Such differences, although somewhat dampened, will persist until 2050. By that time, the population of the more developed regions will have been declining for 20 years, whereas the population of the less developed regions will still be rising at an annual rate of 0.4 per cent. More importantly, the population of the least developed countries will likely be rising at a robust annual rate of over 1.2 per cent in 2045-2050.

As a result of these trends, the population of more developed regions, currently at 1.2 billion, is anticipated to change little during the next 50 years. In addition, because fertility levels for most of the developed countries are expected to remain below replacement level during 2000-2050, the populations of 30 developed countries are projected to be smaller by mid-century than today (e.g., 14 per cent smaller in Japan; 22 per cent smaller in Italy, and between 30 and 50 per cent smaller in the cases of Bulgaria, Estonia, Georgia, Latvia, the Russian Federation and Ukraine).

The population of the less developed regions is projected to rise steadily from 4.9 billion in 2000 to 7.7 billion in 2050 (medium variant). Particularly rapid growth is expected among the least developed countries whose population is projected to rise from 668 million to 1.7 billion despite the fact that their fertility is projected to decline markedly in the future (from 5.1 children per woman today to 2.5 children per woman in 2045-2050). With sustained annual growth rates higher than 2.5 per cent between 2000 and 2050, the populations of Burkina Faso, Mali, Niger, Somalia, Uganda and Yemen are projected to quadruple, passing from 85 million to 369 million in total.

Large population increments are expected among the most populous countries even if their fertility levels are projected to be low. Thus, during 2000-2050, eight countries (India, Pakistan, Nigeria, the United States of America, China, Bangladesh, Ethiopia and the Democratic Republic of Congo, in order of population increment) are expected to account for half of the world's projected population increase.

The past 50 years witnessed a remarkable reduction of fertility levels in the less developed regions, with total fertility falling from 6 to 3 children per woman. Over the next 50 years, fertility in the less developed regions is expected to reach replacement level in 2030-2035 and fall below it thereafter. However, average fertility in the less developed regions as a whole is still expected to be slightly above 2 children per woman in 2045-2050, mainly because of the increasing heterogeneity of population dynamics among developing countries. Thus, the 49 least developed countries are expected to have a total fertility of 2.5 children per woman in 2045-2050, well above replacement level. That is, the *2002 Revision* foresees that by mid-century there will still be a significant number of countries where the transition to below-replacement fertility will not be completed.

Increasing diversity is also evident with respect to future mortality levels. At the world level, life expectancy at birth is likely to rise from 65 years today to 74 years in 2045-2050. But whereas more developed regions, whose life expectancy today is estimated at 76 years, will see it rise to 82 years, that of less developed regions will remain considerably below, reaching 73 years by mid-century (up from 63 years today). In the group of least developed countries, many of which are highly affected by the HIV/AIDS epidemic, life expectancy today is still below 50 years and is not expected to exceed 67 years by 2050. So, although the gap in life expectancy between the different groups of countries is expected to narrow, major differences in the probabilities of survival will remain evident by mid-century.

The *2002 Revision* indicates a worsening of the impact of the HIV/AIDS epidemic in terms of increased morbidity, mortality and population loss. Although the probability of being infected by HIV is assumed to decline significantly in the future (particularly after 2010), the long-term impact of the epidemic remains dire. Over the current decade, the number of excess deaths because of AIDS among the 53 most affected countries is estimated at 46 million and that figure is projected to ascend to 278 million by 2050. Despite the devastating impact of the HIV/AIDS epidemic, the populations of the affected countries are generally expected to be larger by mid-century than today, mainly because most of them maintain high to moderate fertility levels. However, for the seven most affected countries in Southern Africa, where current HIV prevalence is above 20 per cent, the population is projected to increase only slightly, from 74 million in 2000 to 78 million in 2050, and outright reductions in population are projected for Botswana, Lesotho, South Africa and Swaziland.

The deeper reductions of fertility projected in the *2002 Revision* result in a faster ageing of the population of developing countries than in previous revisions. Globally, the number of older persons (60 years or over) will nearly triple, increasing from 606 million in 2000 to nearly 1.9 billion by 2050. Whereas 6 of every 10 of those older persons live today in less developed regions, by 2050, 8 of every 10 will do so. An even more marked increase is expected in the number of the oldest-old (80 years or over) at the global level: from 69 million in 2000 to 377 million in 2050. In less developed regions, the rise will be from 32 million to 265 million, again implying that most oldest old will live in less developed countries by 2050.

In more developed regions, the population aged 60 or over currently constitutes 19 per cent of the population; by 2050 it will account for 32 per cent of the population. The elderly population in more developed regions has already surpassed the child population (persons aged 0-14) and by 2050 there will be 2 elderly persons for every child. In the less developed regions, the proportion of the population aged 60 or over will rise from 8 per cent in 2000 to close to 20 per cent in 2050.

Increases in the median age, the age at which 50 per cent of the population is older and 50 per cent is younger than that age, reflect the ageing of the population. At the world level, the median age rose by scarcely three years between 1950 and 2000, from 23.6 years to 26.4 years, largely because most populations in less developed countries remained young. Over the next 50 years, however, the world's median age will rise by nearly 10 years, to reach 37 years in 2050. Among developed countries, 13 are expected to have a median age of 50 years or more, with Japan, Latvia and Slovenia (each with a median age of about 53 years), and the Czech Republic, Estonia, Italy and Spain (each with a median age of about 52 years) leading the list. In addition, three developing countries (Armenia, the Republic of Korea and Singapore) will also be in that group. At the other end of the spectrum, Angola, Burkina Faso, Mali, Niger, Somalia, Uganda and Yemen expect to have still young populations, with median ages lower than 23 years in 2050.

International migration is projected to remain high during the first half of the century. The more developed regions are expected to remain net receivers of international migrants, with an average gain of about 2 million migrants per year over the next 50 years. Averaged over the 2000-2050 period, the main net gainers of international migrants are projected to be the United States (1.1 million annual net migrants), Germany (211 thousand), Canada (173 thousand), the United Kingdom (136 thousand) and Australia (83 thousand), whereas the major net senders are projected to be China (-303 thousand annual net number of migrants), Mexico, (-267 thousand), India (-222 thousand), the Philippines (-184 thousand) and Indonesia (-180 thousand).

B. ASSUMPTIONS UNDERLYING THE *2002 REVISION*

The *2002 Revision* includes three projection variants and four scenarios. Five differ among themselves with respect to the assumptions made regarding the future course of fertility. The sixth differs with respect to the assumptions made about the future course of mortality, and the seventh differs with respect to the future course of migration.

To describe the different projection variants or scenarios, the various assumptions made regarding fertility, mortality and international migration are described first.

1. Fertility assumptions

Fertility assumptions are described in terms of the following groups of countries:

1. *High-fertility countries*: Countries that until 2000 had had no fertility reduction or only an incipient decline;

2. *Medium-fertility countries*: Countries where fertility has been declining but whose level was still above 2.1 children per woman in 1995-2000;

3. *Low-fertility countries*: Countries with total fertility at or below 2.1 children per woman in 1995-2000.

Medium-fertility assumption:

1. Total fertility in high-fertility and medium-fertility countries is assumed to decline following a path derived from models of fertility decline established by the United Nations Population Division on the basis of the past experience of all countries with declining fertility during 1950-2000. The models relate the level of total fertility during a period to the average expected decline in total fertility during the next period. Under the medium variant, whenever the total fertility projected by a model falls below 1.85 children per woman, the value actually used in projecting the population is set to 1.85. That is, 1.85 children per woman represents a floor value below which the total fertility of high and medium-fertility countries is not allowed to drop before 2050. However, it is not necessary for all countries to reach the floor value by 2050. If the model of fertility change used produces a total fertility above 1.85 children per woman for 2045-2050, that value is used in projecting the population.

2. Total fertility in low-fertility countries is generally assumed to remain below 2.1 children per woman during most of the projection period and reach 1.85 children per woman by 2045-2050. For low-fertility countries whose total fertility in 1995-2000 is estimated to be below 1.85 children per woman, projected total fertility often declines further before increasing slowly to reach 1.85 in 2045-2050.

High-fertility assumption:

Under the high variant, total fertility is projected to remain 0.5 children above the total fertility in the medium variant over most of the projection period. By 2045-2050, total fertility in the high variant is therefore half a child higher than that of the medium variant. That is, countries reaching a total fertility of 1.85 children per woman in the medium variant have a total fertility of 2.35 children per woman in the high variant at the end of the projection period.

Low-fertility assumption:

Under the low variant, total fertility is projected to remain 0.5 children below the total fertility in the medium variant over most of the projection period. By 2045-2050, total fertility in the low variant is therefore half a child lower than that of the medium variant. That is, countries reaching a total fertility of 1.85 children per woman in the medium variant have a total fertility of 1.35 children per woman in the low variant at the end of the projection period.

Constant-fertility assumption:

For each country, total fertility remains constant at the level estimated for 1995-2000.

Instant-replacement assumption:

For each country and each quinquennium of the projection period (2000-2050), total fertility is set to a level that ensures a net reproduction rate of one. That is, total fertility is set to the level that would ensure population replacement in the long run in light of the sex ratio at birth and level of mortality of the country concerned at each particular period.

2. Mortality assumptions

Normal-mortality assumption:

Mortality is projected on the basis of the models of change of life expectancy produced by the United Nations Population Division (see chapter VII). A medium pace of mortality decline is generally used to project future mortality levels. However, for countries highly affected by the HIV/AIDS epidemic, the slow pace of mortality decline has generally been used to project the reduction of general mortality risks not related to HIV/AIDS.

In addition, for the countries highly affected by the HIV/AIDS epidemic, estimates of the impact of HIV/AIDS are made explicitly through assumptions about the future course of the epidemic—that is, by projecting the yearly incidence of HIV infection. The model developed by the UNAIDS Reference Group on Estimates, Modelling and Projections[1] has been used to fit past HIV prevalence estimates obtained from UNAIDS so as to derive the parameters determining the past dynamics of the epidemic. For most countries, the model is fitted assuming that the relevant parameters have remained constant in the past. For projection purposes, the parameters are kept constant until 2010. Thereafter, the parameter which reflects the rate of recruitment of new individuals into the high-risk or susceptible group, is projected to decline by a third over intervals of increasing length. In addition, the parameter r, which represents the force of infection, is projected to decline by 15 per cent over the same intervals. A reduction in r is based on the assumption that changes in behaviour among those subject to the risk of infection will reduce the chances of transmitting the virus.

Constant-mortality assumption:

For each country, mortality remains constant at the level estimated in 1995-2000.

3. International migration assumptions

Normal-migration assumption:

The future path of international migration is set on the basis of past international migration estimates and an assessment of the policy stance of countries with regard to future international migration flows.

Zero-migration assumption:

For each country, international migration is set to zero for the period 2000-2050.

Table 1 presents in a schematic way the different assumptions underlying the three projection variants and four scenarios. As shown, the five fertility variants (low, medium, high, constant-fertility, and instant-replacement) share the same assumptions regarding mortality and international migration. They differ among themselves only with respect to the assumptions regarding fertility. A comparison of their results allows therefore an assessment of the effects that different fertility paths have on other demographic parameters.

In addition to the five fertility variants, a constant-mortality scenario and a zero-migration scenario have also been prepared. They both have the same fertility assumption (i.e. the medium fertility). Furthermore, the constant-mortality scenario has the same international migration assumption as the medium variant. Consequently, the results of the constant-mortality scenario can be compared with those of the medium variant to assess the effect that changing mortality has on other demographic parameters. Similarly, the zero-migration scenario differs from the medium variant only with respect to the underlying assumption regarding migration. Therefore, the zero-migration scenario allows an assessment of

TABLE 2. PROJECTION VARIANTS IN TERMS OF ASSUMPTIONS FOR FERTILITY, MORTALITY AND INTERNATIONAL MIGRATION

Projection variant or scenario	*Assumptions* Fertility	Mortality	International migration
Low	Low	Normal	Normal
Medium	Medium	Normal	Normal
High	High	Normal	Normal
Constant-fertility	Constant	Normal	Normal
Instant-replacement	Instant-replacement	Normal	Normal
Constant-mortality	Medium	Constant	Normal
Zero-migration	Medium	Normal	Zero

Source: United Nations Department of Economic and Social Affairs' Population Division.

the effect that non-zero migration has on other demographic parameters.

C. SUMMARY OF THE METHODOLOGICAL CHANGES MADE FOR THE *2002 REVISION*

The following changes and adjustments were made in the *2002 Revision* in relation to procedures followed in the *2000 Revision*:

1. In the medium variant, the future fertility paths for countries with total fertility above 2.1 children per woman are projected using models derived from the past experience of all countries where fertility has already declined.

2. Countries with current total fertility above 2.1 children per woman are no longer constrained to stop their future fertility decline at 2.1 children per woman. Instead, their fertility levels can continue to decline until they reach 1.85 children per woman, the floor value below which total fertility is not allowed to fall in the medium variant. Not all countries, however, need to reach the floor value in the medium variant.

3. The total fertility of all low-fertility countries is assumed to converge to 1.85 children per woman by the end of the projection period instead of reaching different target values as in the *2000 Revision*.

4. For all countries, total fertility in the high and low variants is projected to be 0.5 children above and 0.5 children below, respectively, from the total fertility of the medium variant. In the *2000 Revision*, a difference of 0.4 of a child was used in the case of low-fertility countries.

The estimation and projection of the impact of HIV/AIDS was modified to incorporate the model developed by the UNAIDS Reference Group on Estimates, Modelling and Projections. Use of the new model allows the formulation of projection hypotheses on the basis of parameters that are meaningful with respect to the dynamics of the epidemic.

Chapter VII presents a more detailed elaboration of these methodological changes, as well as a general review of the demographic methods employed in the *2002 Revision*.

D. ORGANIZATION OF THE REST OF THE REPORT

Chapters I through V present a broad overview of trends and prospects in population size, population composition, fertility, mortality, and international migration. Each of these chapters is followed by a series of annex tables on the same topic that permit a more in-depth look at the quantitative results of the *2002 Revision*.

Chapter VI provides a detailed treatment of the demographic impact of HIV/AIDS in those countries that are highly affected by the epidemic. The chapter includes a detailed presentation of the used to estimate and project the prevalence of HIV and its impact on populations.

Chapter VII presents the methodology of the United Nations population estimates and projections. It discusses the revision of past estimates of population dynamics, as well as the assumptions made in projection future fertility, mortality, and international migration.

Chapter VIII contains a review of the data sources and demographic methods that were used in producing the most recent estimates of total population, fertility, mortality, and international migration for each country or area.

E. GEOGRAPHICAL AND DEVELOPMENT GROUPINGS OF COUNTRIES

In the *2002 Revision*, estimates and projections of the population were produced for each country individually. In this volume and elsewhere, results are also presented in terms of the world as a whole, its 21 regions and six major areas. The sets of countries that constitute each region and major area are presented in table 2.

In addition, countries are organized by level of development. These sets of countries are grouped into more developed regions and less developed regions, as well as into the group of least developed countries. The more developed regions and less developed regions are mutually exclusive sets of countries that together constitute the whole world. The more developed regions include all countries in Europe and Northern America plus Australia, New Zealand and Japan. The less developed regions include all other countries or areas in the world. Table 3 presents the list of least developed countries as established by the United Nations General Assembly.

NOTE

[1]Improved methods and assumptions for estimation of the HIV/AIDS epidemic and its impact: Recommendations of the UNAIDS Reference Group on Estimates, Modelling and Projections. *AIDS*, vol. 16, pp. W1-W14 (UNAIDS Reference Group on Estimates, Modelling and Projections, 2002).

TABLE 3. CLASSIFICATION OF COUNTRIES OR AREAS BY MAJOR AREA AND REGION OF THE WORLD

Africa

Eastern Africa

Burundi
Comoros
Djibouti
Eritrea
Ethiopia
Kenya
Madagascar
Malawi
Mauritius
Mozambique
Réunion
Rwanda
Seychelles*
Somalia
Uganda
United Republic of Tanzania
Zambia
Zimbabwe

Middle Africa

Angola
Cameroon
Central African Republic
Chad
Congo
Democratic Republic of the Congo
Equatorial Guinea
Gabon
Sao Tome and Principe

Northern Africa

Algeria
Egypt
Libyan Arab Jamahiriya
Morocco
Sudan
Tunisia
Western Sahara

Southern Africa

Botswana
Lesotho
Namibia
South Africa
Swaziland

Western Africa

Benin
Burkina Faso
Cape Verde
Côte d'Ivoire
Gambia
Ghana
Guinea
Guinea-Bissau
Liberia
Mali
Mauritania
Niger
Nigeria
Saint Helena*
Senegal
Sierra Leone
Togo

Asia

Eastern Asia

China
China, Hong Kong SAR
China, Macao SAR
Democratic People's Republic of Korea
Japan
Mongolia
Republic of Korea

South-central Asia

Afghanistan
Bangladesh
Bhutan
India
Iran (Islamic Republic of)
Kazakhstan
Kyrgyzstan
Maldives
Nepal
Pakistan
Sri Lanka
Tajikistan
Turkmenistan
Uzbekistan

South-eastern Asia

Brunei Darussalam
Cambodia
Democratic Republic of Timor-Leste
Indonesia
Lao People's Democratic Republic
Malaysia
Myanmar
Philippines
Singapore
Thailand
Viet Nam

Western Asia

Armenia
Azerbaijan
Bahrain
Cyprus
Georgia
Iraq
Israel
Jordan
Kuwait
Lebanon
Occupied Palestinian Territory
Oman
Qatar
Saudi Arabia
Syrian Arab Republic
Turkey
United Arab Emirates
Yemen

TABLE 3 (*continued*)

Europe

Eastern Europe	*Northern Europe*	*Southern Europe*	*Western Europe*
Belarus	Channel Islands	Albania	Austria
Bulgaria	Denmark	Andorra*	Belgium
Czech Republic	Estonia	Bosnia and Herzegovina	France
Hungary	Faeroe Islands*	Croatia	Germany
Poland	Finland	Gibraltar*	Liechtenstein*
Republic of Moldova	Iceland	Greece	Luxembourg
Romania	Ireland	Holy See*	Monaco*
Russian Federation	Isle of Man*	Italy	Netherlands
Slovakia	Latvia	Malta	Switzerland
Ukraine	Lithuania	Portugal	
	Norway	San Marino*	
	Sweden	Serbia and Montenegro	
	United Kingdom of Great Britain and Northern Ireland	Slovenia	
		Spain	
		The former Yugoslav Republic of Macedonia	

Latin America and the Caribbean

Caribbean	*Central America*	*South America*
Anguilla*	Belize	Argentina
Antigua and Barbuda*	Costa Rica	Bolivia
Aruba*	El Salvador	Brazil
Bahamas	Guatemala	Chile
Barbados	Honduras	Colombia
British Virgin Islands*	Mexico	Ecuador
Cayman Islands*	Nicaragua	Falkland Islands (Malvinas)*
Cuba	Panama	French Guiana
Dominica*		Guyana
Dominican Republic		Paraguay
Grenada*		Peru
Guadeloupe		Suriname
Haiti		Uruguay
Jamaica		Venezuela
Martinique		
Montserrat*		
Netherlands Antilles		
Puerto Rico		
Saint Kitts and Nevis*		
Saint Lucia		
Saint Vincent and the Grenadines		
Trinidad and Tobago		
Turks and Caicos Islands*		
United States Virgin Islands		

TABLE 3 (*continued*)

Northern America

Bermuda*
Canada
Greenland*
Saint-Pierre-et-Miquelon*
United States of America

Oceania

Australia/New Zealand	*Melanesia*	*Micronesia*	*Polynesia*
Australia	Fiji	Guam	American Samoa*
New Zealand	New Caledonia	Kiribati*	Cook Islands*
	Papua New Guinea	Marshall Islands*	French Polynesia
	Solomon Islands	Micronesia (Federated States of)	Niue*
	Vanuatu	Nauru*	Pitcairn*
		Northern Mariana Islands*	Samoa
		Palau*	Tokelau*
			Tonga
			Tuvalu*
			Wallis and Futuna Islands*

Least developed countries

Afghanistan	Gambia	Niger
Angola	Guinea	Rwanda
Bangladesh	Guinea-Bissau	Samoa
Benin	Haiti	Sao Tome and Principe
Bhutan	Kiribati	Senegal
Burkina Faso	Lao People's Democratic Republic	Sierra Leone
Burundi	Lesotho	Solomon Islands
Cambodia	Liberia	Somalia
Cape Verde	Madagascar	Sudan
Central African Republic	Malawi	Togo
Chad	Maldives	Tuvalu
Comoros	Mali	Uganda
Democratic Republic of the Congo	Mauritania	United Republic of Tanzania
Djibouti	Mozambique	Vanuatu
Equatorial Guinea	Myanmar	Yemen
Eritrea	Nepal	Zambia
Ethiopia		

Sub-Saharan Africa

Angola	Côte d'Ivoire	Kenya	Nigeria	Swaziland
Benin	Dem. Rep. of the Congo	Lesotho	Réunion	Togo
Botswana	Djibouti	Liberia	Rwanda	Uganda
Burkina Faso	Equatorial Guinea	Madagascar	Saint Helena	United Republic of Tanzania
Burundi	Eritrea	Malawi	Sao Tome and Principe	
Cameroon	Ethiopia	Mali	Senegal	Zambia
Cape Verde	Gabon	Mauritania	Seychelles	Zimbabwe
Central African Republic	Gambia	Mauritius	Sierra Leone	
Chad	Ghana	Mozambique	Somalia	
Comoros	Guinea	Namibia	South Africa	
Congo	Guinea-Bissau	Niger	Sudan	

NOTE: Countries or areas with a population of less than 100,000 in 2000 are indicated by an asterisk (*).

I. POPULATION SIZE AND GROWTH

In the year 2000, the world's population is estimated to have reached the level of 6.1 billion. People are not spread evenly across nation-states and territories, of course—they are mainly to be found in a small set of very populous countries. Figure I.1 shows that the great majority of the world's countries are small in terms of their population size—of all countries, some 79 per cent have populations under 20 million. But even taken as a group, these countries can account for only 13 per cent of world population. Countries with populations from 20 to 100 million comprise about 17 per cent of all countries and 27 per cent of all population. But it is the remaining 10 largest countries—a mere 4 per cent of all countries—that lay claim to the remaining 60 per cent of world population.

Each of these 10 countries had a population of 100 million or more in the year 2000, and, taken together, they provide a home to some 3.63 billion people. Nearly 2 of every 5 people on Earth reside in China (with 1.28 billion residents) and India (1.02 billion), which together make up 38 per cent of the world's population. Seven of the 10 most populous countries are considered to be less developed, leaving only 3 in the more developed regions (the United States of America, with a population of 285 million; the Russian Federation with 146 million; and Japan with 127 million). These large, more-developed countries account for 9 per cent of world population, a considerable share if far below that of India and China.

Figure I.2 depicts the distribution of world population by level of development. Throughout this *Revision*, comparisons will be made among countries in the more developed, least developed, and other less developed countries. The regions that are classified as "more developed" had some 1.2 billion residents in the year 2000, or about 20 per cent of the world total. The total for all less developed regions was 4.9 billion, of which the least developed countries accounted for about 0.7 billion and other less developed countries for 4.2 billion. As will be seen, the social and economic disadvantages afflicting countries in the least developed countries are often vividly expressed in basic demographic indicators. In assessing the challenges to international development that are presented by these countries, it should be remembered that they account for a relatively small share of the world's population: only 11 per cent in 2000. China and India, the most populous countries, are grouped with the "other less developed countries" according to the classification used in this *Revision*, and collectively these regions account for some 69 per cent of the world's population.

The concentration of world population in large countries is not a recent phenomenon. Table I.9 lists the countries that together comprised three-quarters of world population in 1950 and 2000, and that are expected to do so in 2050. Looking back to 1950, it can be seen that the numerical dominance of the large countries has been characteristic of the past half-century. In 1950 the combined populations of some 24 countries accounted for three-quarters of the population of the globe; by 2050, according to the medium projection variant shown in the table, 30 countries will suffice to reach that same share. To be sure, a good deal of churn in the rankings is expected to take place over the next 50 years. India and China will likely trade places at the very top of the population rankings; Nigeria is expected to rise from 10th to 6th in rank between 2000 and 2050, while the Russian Federation falls from 6th to 18th. The forces propelling such changes are to be discussed at length in this *Revision*.

A. THE GROWTH OF WORLD POPULATION

Total world population will increase from the 6.1 billion estimated for the year 2000 to some 8.9 billion persons in 2050, according to the medium variant. The increase would be substantially greater in the absence of fertility decline. This can be seen in figure I.3, which draws out the implications of alternative fertility assumptions. If fertility were to be held constant at its current level for every country, the world's population would be expected to reach a total of 12.8 billion persons by the year 2050, more than doubling its present size. The extent of growth

Figure I.1. Distribution of countries and shares of world population, by range of country population size: 2000

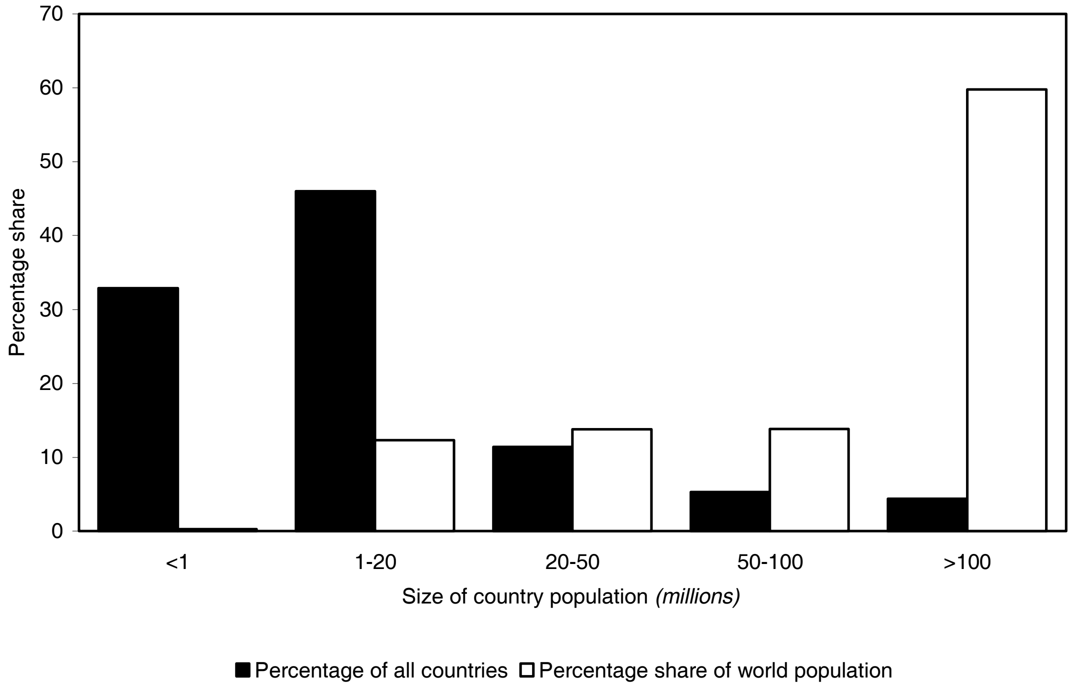


Figure I.2. Shares of world population by level of development group, estimates and medium variant: 1950, 2000 and 2050

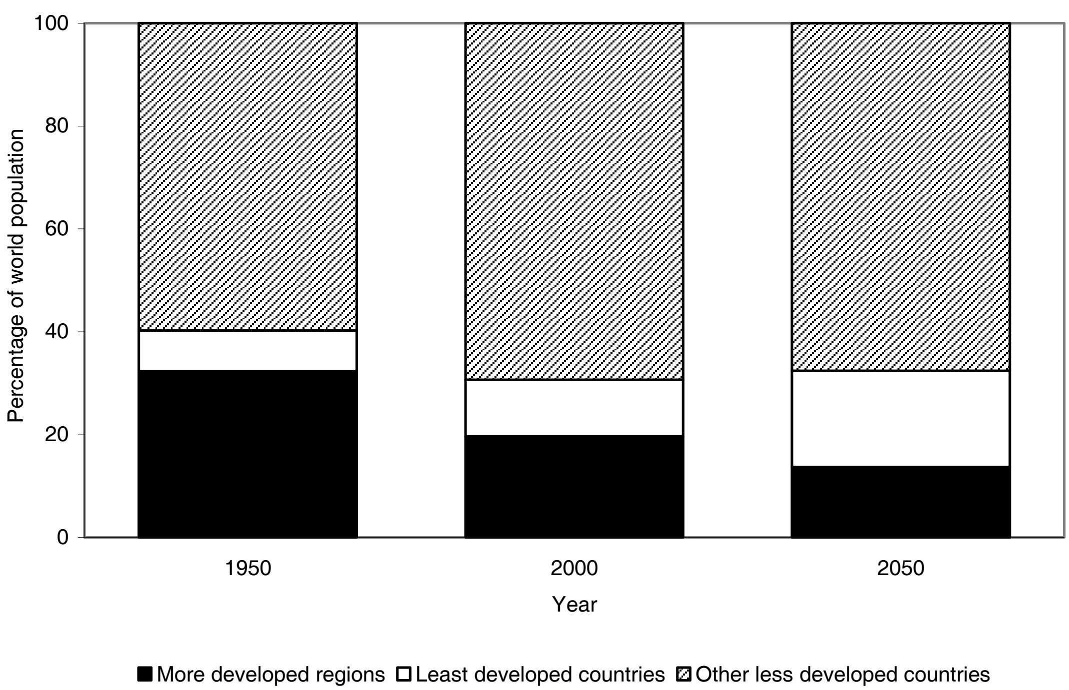
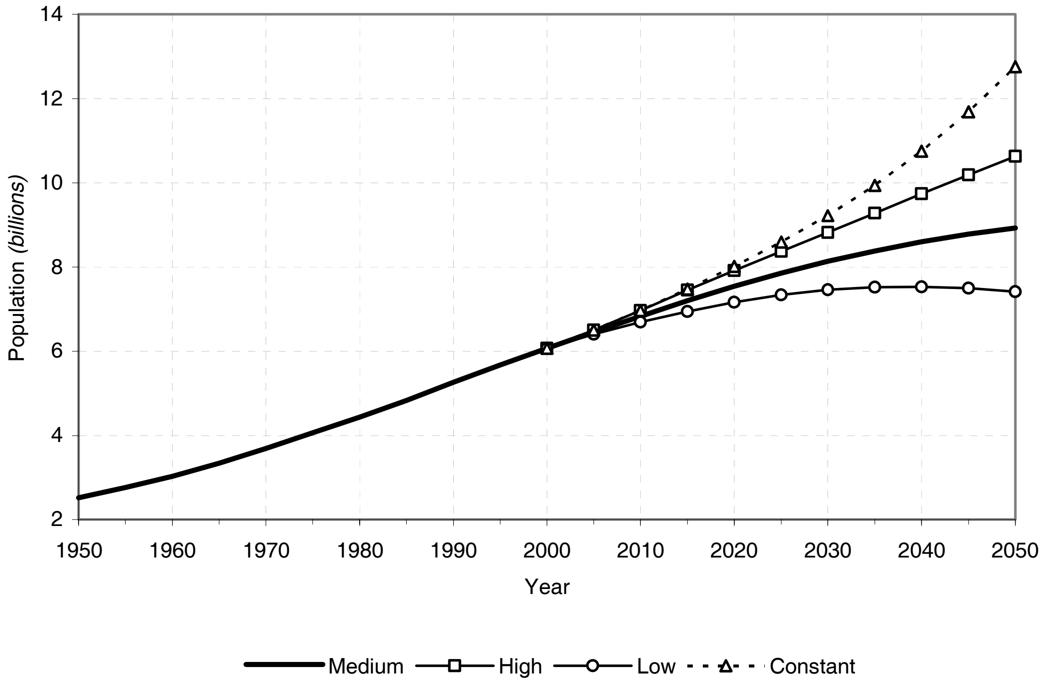


Figure I.3. Total world population, estimates and projections by variants: 1950–2050



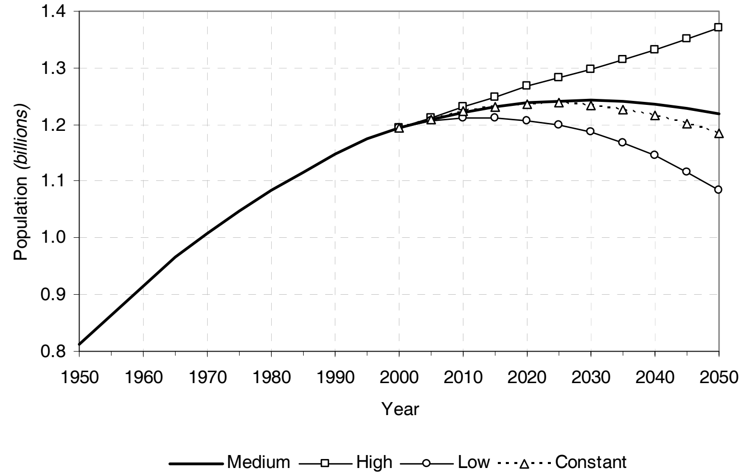
is all the more impressive when one considers that the imposition of constant fertility fixes a number of countries at below-replacement fertility levels. Alternatively, if total fertility rates were to adhere to the high-fertility variant, half a child above what is assumed in the medium variant but generally declining over time, the world total would reach 10.6 billion. Under the low-fertility assumption, by contrast, with total fertility rates set half a child below the medium variant, world population would reach only 7.4 billion, this still representing an addition of 1.1 billion persons to the world's current total. Evidently, the pace and depth of fertility decline will continue to make a great deal of difference to world population. Mortality decline is also expected to make a significant contribution (not shown in the graph). If mortality rates were held constant at their current levels, world population would rise to 7.9 billion persons in 2050, some 1 billion short of the forecast in the medium variant.

Although there are important differences across these projection variants, in one respect they are in close agreement: an era of substantial world population growth lies ahead. To be sure, the *2002 Revision* projects a lower world population in 2050 than the *2000 Revision* did: 8.9 billion persons instead of the 9.3 billion who were projected in the medium variant of that earlier *Revision*. About half of the difference of 403 million persons results from an increase in the number of projected deaths, the majority of which are attributable to higher projected levels of HIV prevalence. The other half of the difference results from a reduction in the projected number of births, this stemming mainly from the lower expected future fertility levels assumed in the *2002 Revision*.

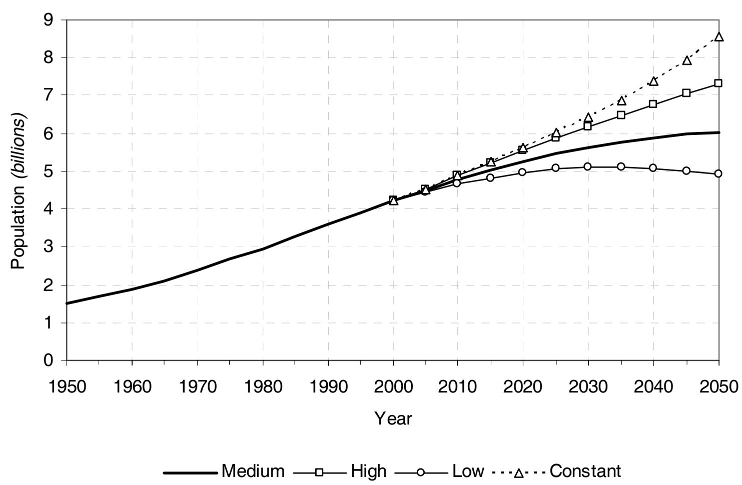
The estimated and projected world totals are the product of divergent trends for more developed and less developed regions. Figure I.4 depicts the anticipated trends. For the more developed regions, it seems that an era of population decline lies not too far into the future. According to the medium variant, the aggregate population of this region will rise from the year 2000 estimate of 1.19 billion persons to a peak of 1.25 billion around 2030, and will then fall to 1.22 billion by the end of the projection pe-

Figure I.4. Total population by development group, estimates and projections by variants: 1950–2050

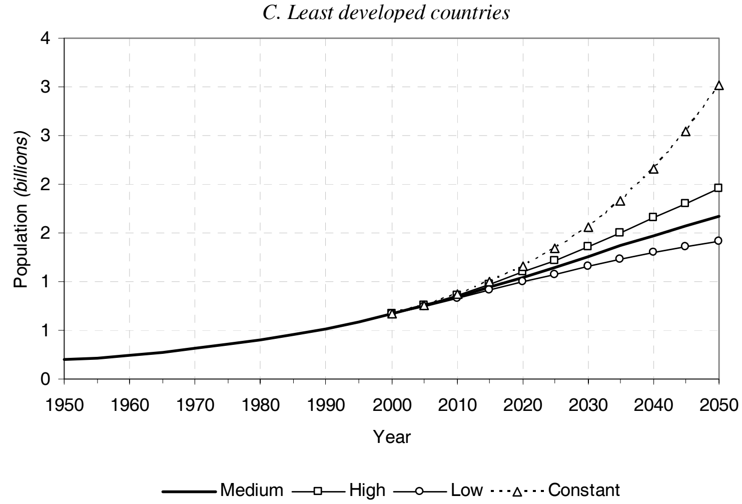
A. More developed regions



B. Other less developed countries



C. Least developed countries



riod, yielding a net addition of only 0.03 billion. Only the high fertility variant would suggest continued growth in the populations of the more developed regions. Note that if current levels of fertility were to be maintained, as assumed in the constant fertility variant, the populations of the more developed regions would fall below the medium variant projection. It is the anticipation of some fertility increase that accounts for the difference between the projections.

For the less developed regions, the expected trajectories all involve substantial further population growth. The least developed countries, whose populations stood at 668 million in 2000, will witness continued increases under all fertility variants, attaining a total of 1.67 billion persons by 2050 in the medium variant. If current levels of fertility were to persist, however, that total would exceed 3 billion. Hence, the prospects for fertility decline remain of critical importance to the populations of the least developed countries. Even if their fertility rates were to follow the high fertility variant, this would reduce expected year 2050 populations by over 1 billion persons relative to the constant fertility case. Likewise, the path of fertility decline will make an important difference to the futures of the other less developed countries, a group that includes China, India, Brazil, Indonesia, and other populous nations. The medium variant projection for these countries indicates continued population growth, with their total rising from 4.21 billion persons in 2000 to 6.02 billion in 2050. As with the least developed countries, a freeze of fertility rates at their current levels would add an expected 2.5 billion persons to the total population of these regions (relative to the medium variant), whereas the expected total would be only 700 million above the current population if the low fertility variant were somehow to prevail. To sum up, for all less developed regions combined, constant fertility would imply total populations of 11.6 billion in 2050, well above the 7.7 billion produced by the medium variant.

Figure I.5 may shed additional light on the prospects for population decline in selected countries and subregions of the more developed world. The trajectories depicted here are all taken from medium variant projections. As can be seen, the most substantial population decline relative to current levels is likely to occur in the Russian Federation, which is projected to lose 30 per cent of its current total. Eastern Europe is projected to decline by 27 per cent. Southern Europe and Japan will likely see declines of about 14 per cent over the same period. Little change is expected in the total populations of Western Europe, and a small increase, on the order of 6 percent, is forecast for Northern Europe. In both of these subregions, net immigration is expected to play an important role in maintaining or slightly increasing population size.

Population declines of a similar order, though due to very different circumstances, are projected for some less developed regions. Figure I.6 depicts the population trajectories for the countries of the Southern Africa subregion, which are among those hardest-hit by the HIV/AIDS epidemic. Among these countries, only Namibia is thought likely to experience continued population growth. South Africa (the dominant county of the subregion in population size) will see a reduction in its population of about 9 per cent relative to year 2000 levels, as will Swaziland. Botswana is expected to weather a population loss of about 20 percent, and for Lesotho, the expected loss is even greater.

The developments discussed above may be summarized in terms of the shares of world population growth taken by the more developed, least developed, and other less developed countries. Figure I.7 shows that of all population growth anticipated for the years 2000–2050 in the medium variant, the less developed regions will likely take the lion's share. Total growth for the more developed regions—projected at 0.03 billion as mentioned above—is barely perceptible in relation to all population growth over the period, amounting to less than 1 per cent of the world's total growth. By contrast, the least developed countries will account for some 35 per cent of all population growth in the next half-century, and the other less developed countries for 64 per cent. This is a marked departure from what occurred in the last half-century, also shown in the figure, when population growth in the more developed regions accounted for a considerably larger share of the world's growth.

Figure I.5. Projected population trends in more developed regions and selected countries, medium variant: 2000–2050

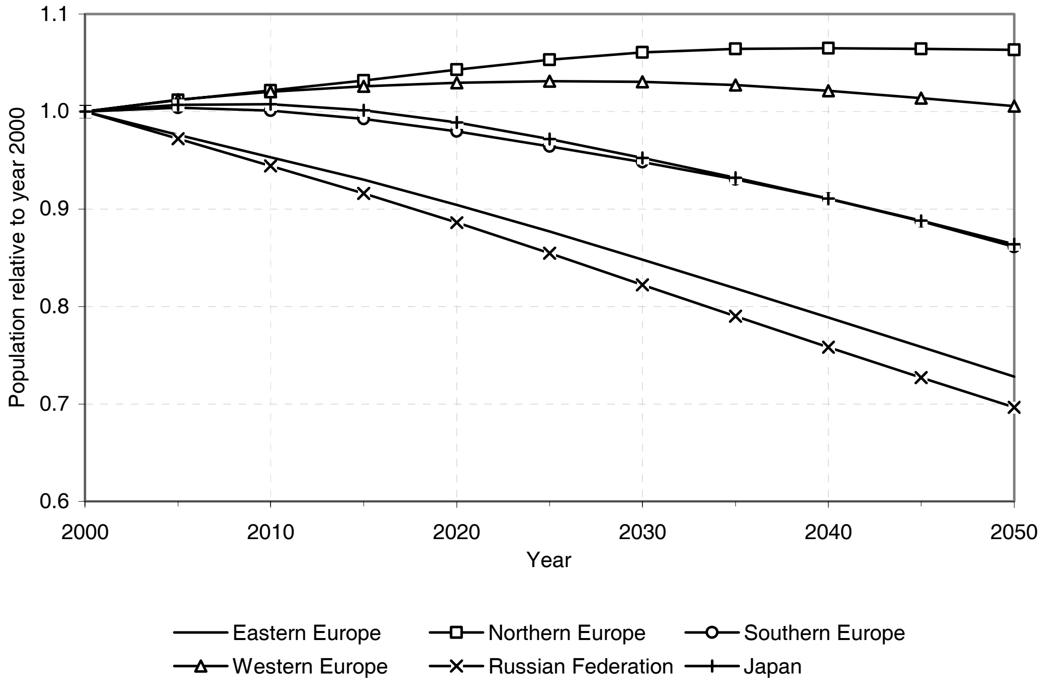


Figure I.6. Projected population trends in Southern Africa by country, medium variant: 2000–2050

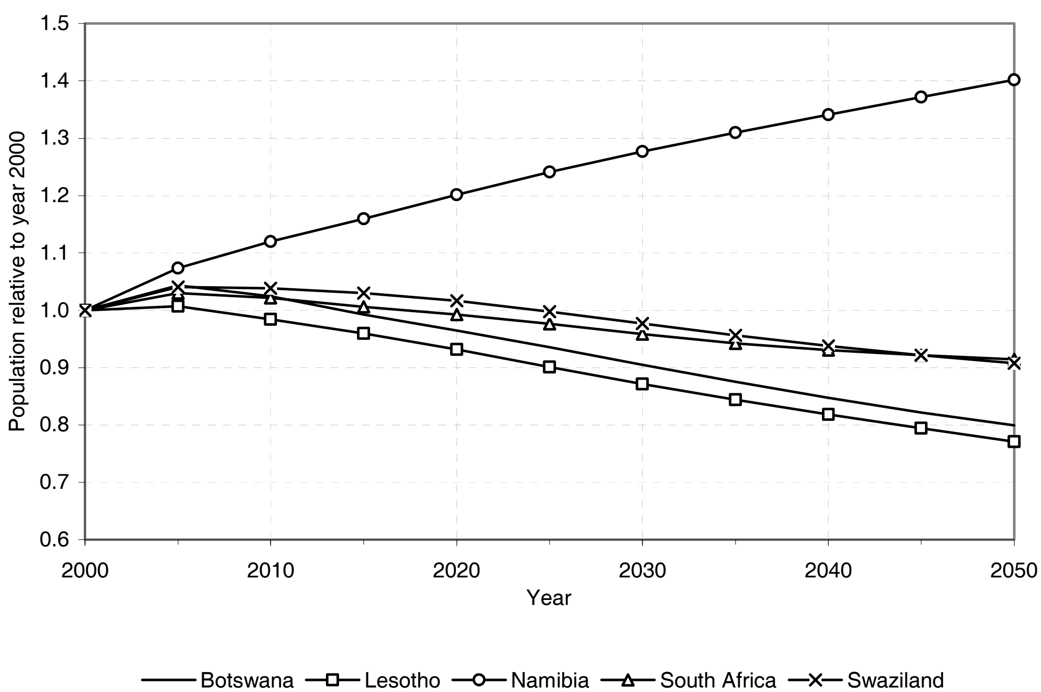
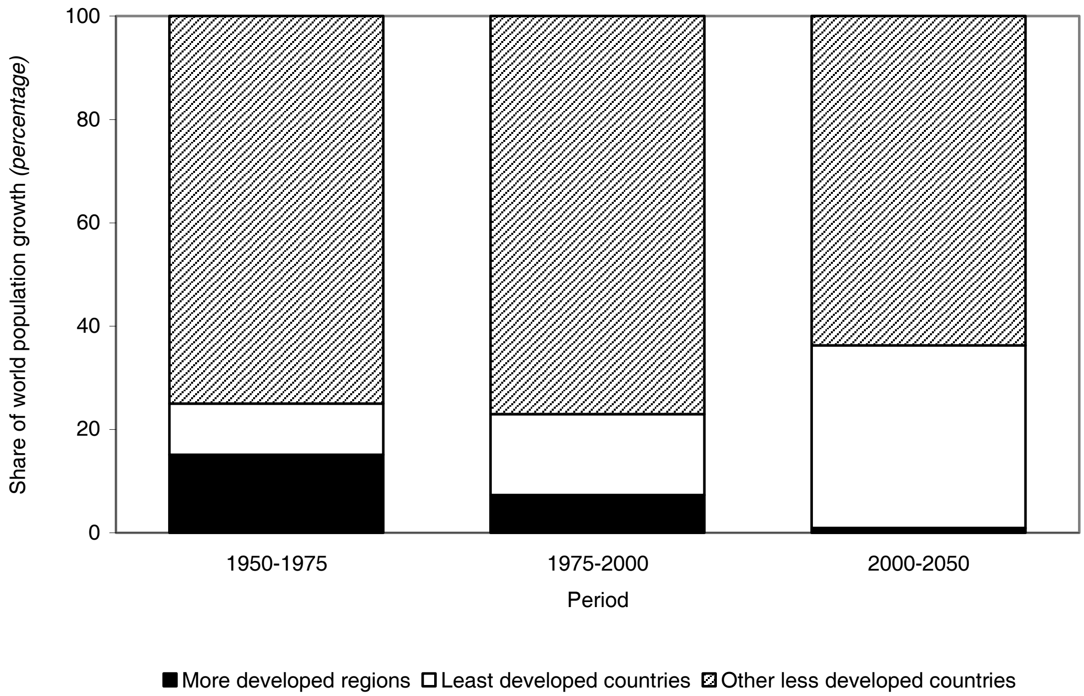


Figure I.7. Share of world population growth by development group, estimates and medium variant: 1950–2050



According to United Nations (2002a), the vast majority of the upcoming population growth—well over 90 per cent—will be taking place in the cities and towns of less developed regions. The growth anticipated in figure I.7, and described elsewhere in this chapter, is expected to be almost entirely an urban, less developed-regions phenomenon. Very little population growth is forecast for the rural areas of less developed regions, and as noted, total growth in the more developed regions is also expected to be slight. Although further analysis is beyond the scope of the *2002 Revision*, it is important to take note of this dominant urban component in considering the demands that will be placed by population growth on governmental capacities and economic development strategies. The reader is referred to United Nations (2002a) for further discussion.

At present, some 77 million people are added annually to the world's total population. Six countries account for half of that net addition: India (with 21 per cent); China (12 per cent); Pakistan (5 per cent); and (at 4 per cent each) Bangladesh, Nigeria, and the United States of America. Looking a half-century ahead to 2050, eight large countries are expected to absorb about half of the world's projected population increase over the period. Listed in order of their expected additions, these are India, Pakistan, Nigeria, the United States of America, China, Bangladesh, Ethiopia, and the Democratic Republic of Congo. India alone is expected to add some 514 million people over the next half-century, while China, although currently more populous, adds 120 million people by virtue of its lower expected fertility rates. Pakistan will add 206 million people, according to the medium variant, while Nigeria is forecast to add 144 million. Of the countries in this list, the only one in the more developed regions is the United States of America, which is expected to add 124 million people to its population.

B. Projected growth rates

Throughout most of human history, population growth rates were on average very low, and it was probably not until the seventeenth and eighteenth centuries that annual growth rates as high as 0.5 per cent could be sustained. From then until the dawn of the twentieth century, population growth at the rate of half a percentage point annually was the norm; but during the twentieth century, growth accelerated to historically unprecedented rates, reaching the heights of 2 per cent annually in 1965–1970. Since that historic peak, world population growth has greatly decelerated, and if the medium projections made in the *2002 Revision* come to pass, the world will be returning to the 0.5 per cent rate of growth that was the norm in the eighteenth and nineteenth centuries. In retrospect, the rapid growth of the twentieth century may come to be seen as an extraordinary but historically isolated phenomenon.

World population growth rates are now estimated at 1.2 per cent on an annual basis. For the future, assumptions about the trajectory of fertility rates will play a major role in determining the rate of growth. Figure I.8 shows the differences in projected rates of growth by fertility variant. As was the case with projected population sizes (shown earlier), the constant fertility assumption produces the highest rate of world population growth, followed by the high fertility variant, and the medium and low variants. Indeed, under the assumption of constant fertility rates, world population growth rates would be projected to increase in the latter part of the projection period.

The diversity of population growth rates around the globe can be appreciated in figure I.9, which displays growth rates by level of development. At present, as can be seen in the figure, the growth rates of the more developed regions stand at 0.25 per cent per annum—about half of the norm in the eighteenth and nineteenth centuries—whereas the growth rates for the least developed are 2.4 per cent, far above the historical norm. Growth rates in all three regions are projected to decline over time, but only the more developed regions are thought likely to enter an era of population decline. By 2050, the combined population of the more developed regions will have been declining in absolute terms for 20 years, whereas the least developed countries will still be growing at a rate of 1.2 per cent annually.

Figure I.8. Average annual rate of change of world population, estimates and medium variant: 1950–2050

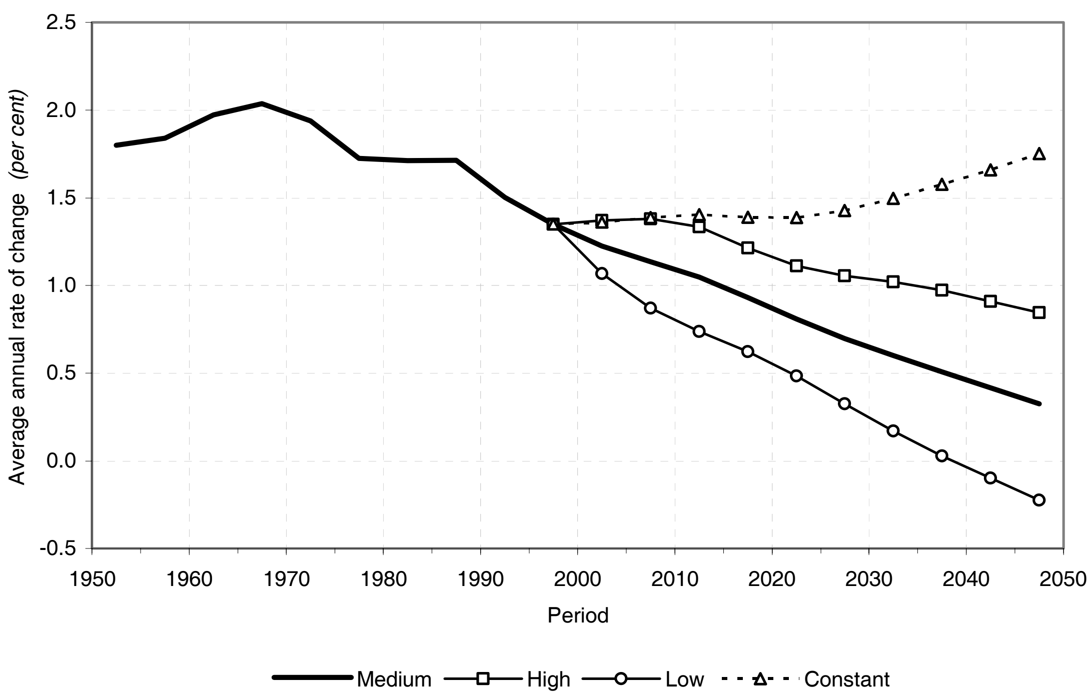
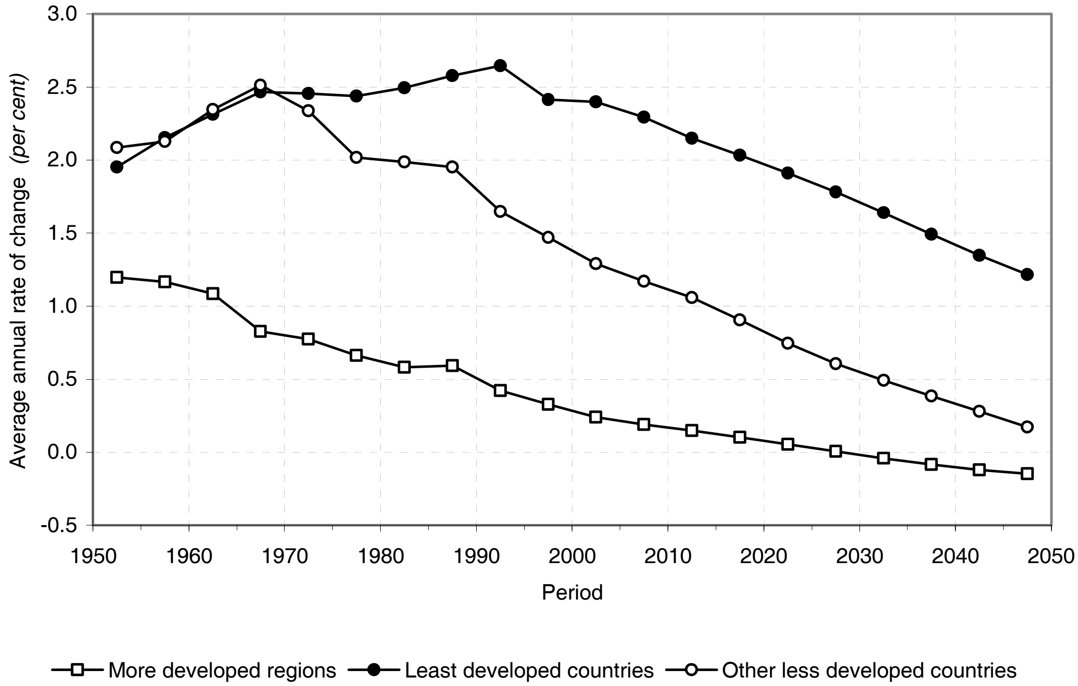


Figure I.9. Average annual rate of change of world population by development group, estimates and medium variant: 1950–2050



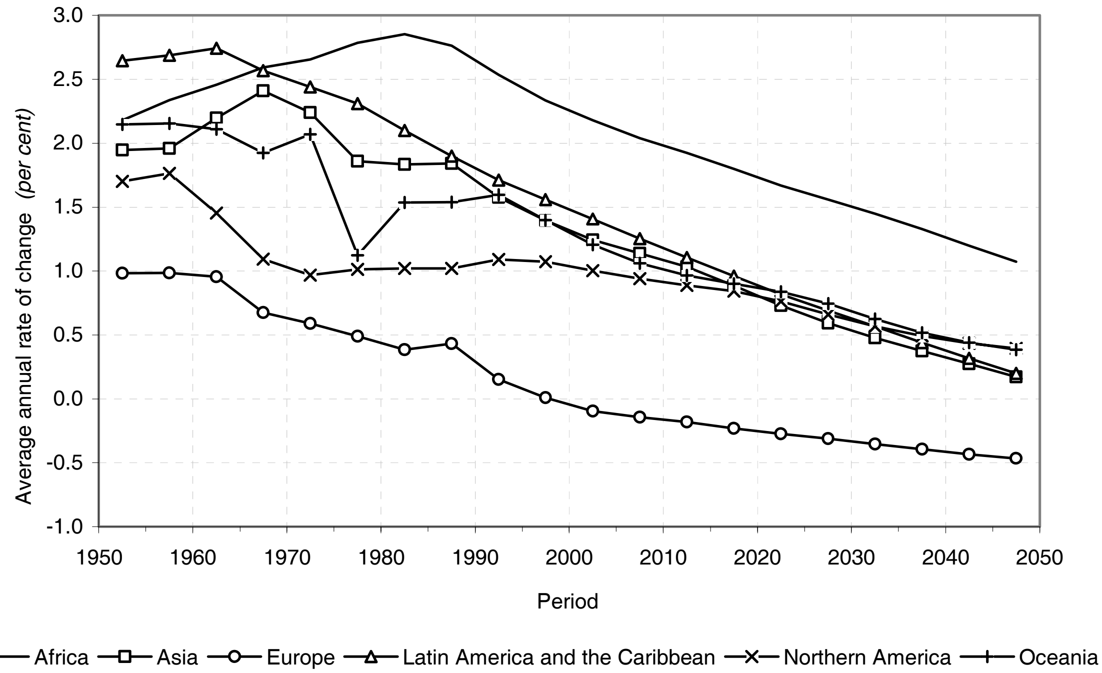
An inspection of growth rate trajectories by major world region (figure I.10) shows that two of these regions will be sharply distinguishable from the others. Population growth rates in Africa are expected to be the highest throughout the projection period, being above 1 per cent even in 2045–2050, while those for Europe are then forecast to be lowest at -0.5 per cent. The other major regions—Asia, Latin America and the Caribbean, Northern America, and Oceania—are expected to converge to population growth rates lying between 0.0 and 0.5 per cent at the end of the projection period.

C. Crude rates and population momentum

Population growth rates are akin to summary statistics. They hint at, but can sometimes obscure, the driving forces exerted by age-specific schedules of fertility and mortality, whose net effects on growth may be expressed in what are termed "intrinsic" rates of growth. Before emerging in the form of population growth rates, the forces of fertility and mortality must be filtered through the population's age structure. The influence of age structure is such that populations with an intrinsic tendency to decline may sometimes grow, and those with an intrinsic tendency to grow may sometimes decline. The situation is further complicated by international migration. Chapters II to V will sort through some of these issues, and to close this chapter only a preview is given here.

A country's age structure is the legacy of its demographic history. Countries that have experienced rapid population growth in the past will tend to have large and increasing cohorts of potential parents. Even if these potential parents decide to have fewer offspring than did their forebears—indeed, even if they decide on fertility levels that are insufficient for generational replacement—the sheer size of such parental cohorts can bring about continued, positive population growth. When low fertility rates are ushered in against a background of rapid growth, they may need to be sustained for a considerable period of time before any reductions in population become evident. According to some estimates (National Research Council, 2000), the population momentum attributable to such age structure effects may account for over

Figure 1.10. Average annual rate of population change by major area, estimates and medium variant: 1950–2050

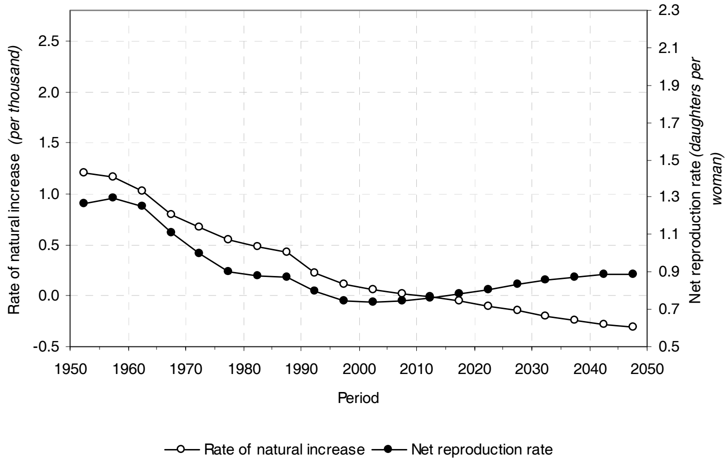


half of world population growth over the next half-century. In Japan and some subregions of Europe, the recent past has left a very different legacy. Here, in some cases, current age structures are such that not even an immediate rise in fertility to replacement levels would be enough to offset population decline, which would be expected to continue for some years into the future (National Research Council, 2000, p. 27).

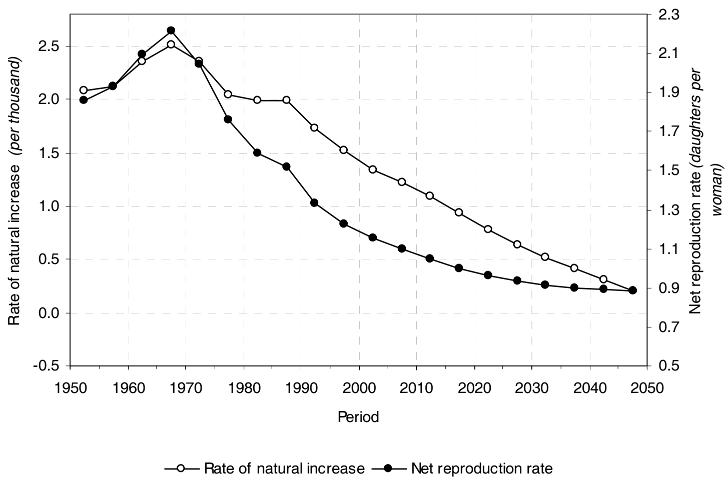
The set of graphs in figure I.11 may aid understanding of the difference between the intrinsic growth tendencies established by fertility and mortality rates and the actual growth that results from the interaction of these rates with population age structure. In these figures, the intrinsic tendencies are expressed in the net reproduction rate (NRR), which may be understood as a measure of generational replacement. On the assumption that current rates of fertility and mortality are held constant into the future, the NRR is interpretable in the following terms. Consider a newly-born girl. The NRR is the average number of daughters whom she would bear over the course of her own lifetime. The measure takes account of female mortality risks through the end of the reproductive span, although it is insensitive to mortality risks at more advanced ages. When the NRR is larger than 1.0, one newly-born girl will on average produce more than one daughter, and, in this way, more than replace herself in a generational sense. Hence, a NRR that is larger than 1.0 establishes an intrinsic tendency for the population to grow. A value of NRR below 1.0 indicates insufficient fertility for generational replacement to occur, and is associated with an intrinsic tendency for population to decline. Generational replacement—no intrinsic tendency for population to either grow or decline—is indicated when NRR equals 1.0. The figures chart the course of the NRR by country level of development. To link such intrinsic growth tendencies to the growth actually experienced by countries, the natural growth rates of these populations are also displayed. Natural growth rates are defined as the difference between crude birth and death rates; thus, for the purposes of these figures, the international migration component has been separated out.

Figure I.11. Rates of natural increase and net reproduction rates by development group, estimates and medium variant: 1950–2050

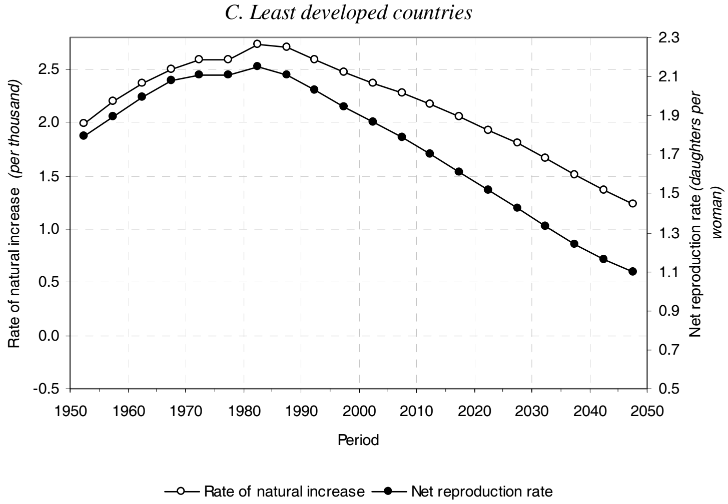
A. More developed regions



B. Other less developed countries



C. Least developed countries



As can be seen, in the more developed regions net reproduction rates fell below 1.0 in the 1970s, and an intrinsic tendency for population decline was thus established early. But natural rates of population growth have not yet turned negative, although they are finally expected to do so in the coming decades. Interestingly, over the latter part of the projection period, the natural rates are forecast to grow ever more negative even as the net reproduction rates turn upward. The least developed countries, considered as a group, are not expected to reach replacement fertility by 2050, and their time paths of intrinsic and natural population growth are roughly synchronous over the projection. Note, however, that the terminal NRR for these countries is near replacement at a NRR of 1.1, whereas the rate of natural population growth will still be a robustly positive 1.2 per cent. In the other less developed countries, replacement levels of fertility are anticipated in the next few decades, this mainly due to the low fertility rates expected for China. Even so, natural rates of growth are likely to remain positive throughout the next half-century.

The transitions expected in fertility and mortality across the world are summarized in figure I.12, which shows crude birth rates and crude death rates for all countries, again distinguished by level of development. The graph is arranged so that the levels of the natural growth rate may be read off the diagonals. The two panels of the figure depict the expected convergence in fertility world-wide, as indicated in the collapse of the vertical range of observations, and likewise the convergence in mortality, as indicated in the shrinkage of the horizontal range. In 2045, differences in crude birth rates will still separate the least developed countries, and a few of the other less developed countries, from the remaining mass of countries, but the variability seen in the year 2000 will have mostly disappeared from view. A great deal of convergence is also expected in the crude death rates. Indeed, many of the more developed regions are forecast to have higher crude death rates in 2045 than the least developed countries. Of course, this convergence in crude death rates is misleading if it is taken as a guide to levels of mortality. It is due to the older age structures expected to be found in the more developed regions, which generate higher crude death rates despite the lower intrinsic levels of mortality that permit survival to the older ages.

D. A GUIDE TO THE ANNEX TABLES

The annex tables provide further detail on population size and population growth. They enable the reader to expand on certain aspects discussed in the chapter or obtain additional information beyond that given in the chapter. In particular, information is provided for selected demographic indicators for all countries (annex tables I.2 and I.5), or a subset of countries (annex tables I.6, I.9, I.10, I.12). Other tables show the demographic indicators for major groups of countries that are for geographic regions and major areas as well as for development groups.

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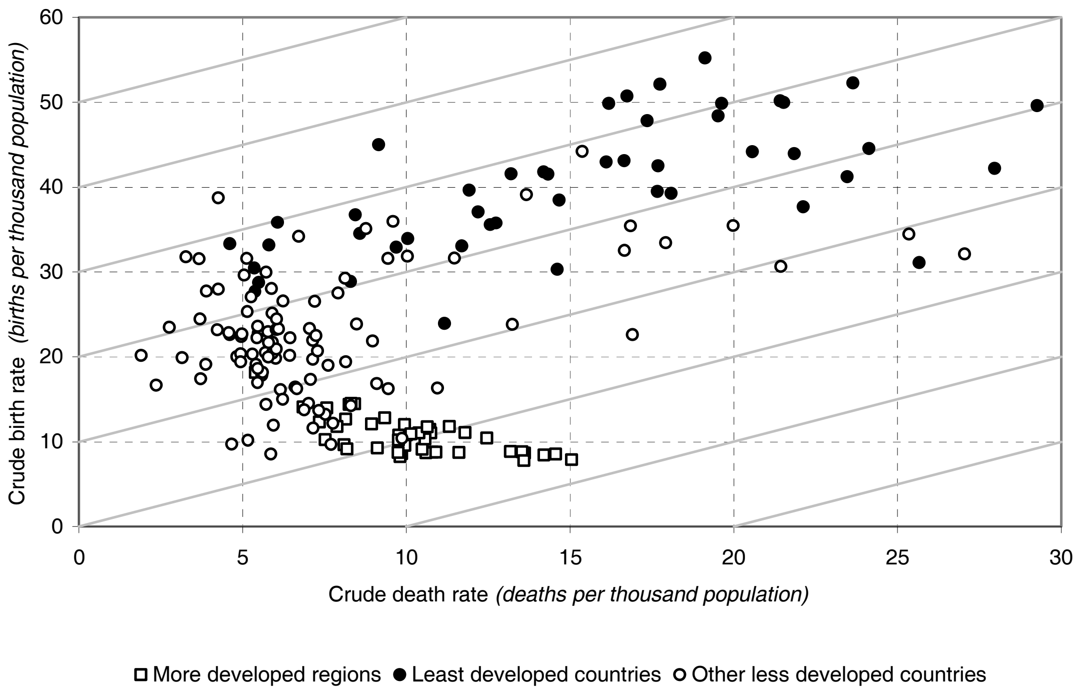
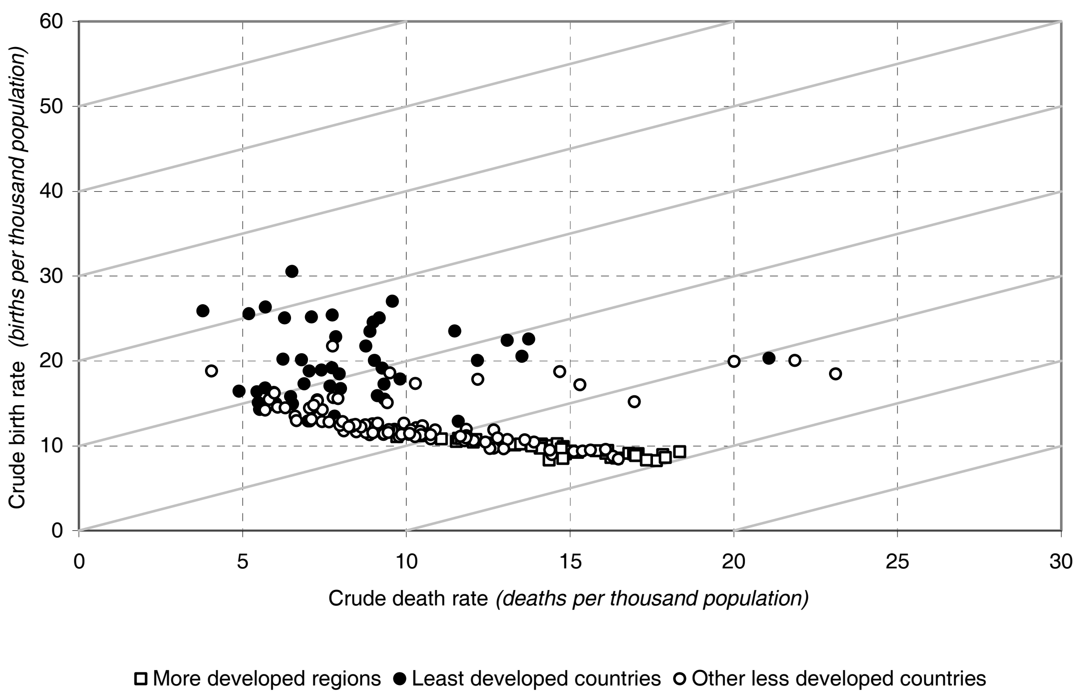
Figure I.12. Crude birth and crude death rates by development group, estimates and medium variant: 2000 and 2045

A. 2000



B. 2045



LIST OF ANNEX TABLES

TABLE I.1. POPULATION OF THE WORLD BY DEVELOPMENT GROUP, MAJOR AREA AND REGION, ESTIMATES AND MEDIUM VARIANT: 1950-2050
(*millions*)

Development group, major area or region	*1950*	*1975*	*2000*	*2005*	*2010*	*2015*	*2020*	*2025*	*2030*	*2035*	*2040*	*2045*	*2050*
World	2 519	4 068	6 071	6 454	6 830	7 197	7 540	7 851	8 130	8 378	8 594	8 774	8 919
More developed regions	813	1 047	1 194	1 209	1 221	1 230	1 237	1 241	1 242	1 240	1 235	1 228	1 220
Less developed regions	1 706	3 021	4 877	5 245	5 609	5 967	6 303	6 610	6 888	7 138	7 358	7 546	7 699
Least developed countries	200	354	668	753	845	942	1 043	1 149	1 257	1 365	1 472	1 575	1 675
Other less developed countries	1 505	2 667	4 209	4 491	4 764	5 025	5 259	5 461	5 631	5 773	5 886	5 971	6 025
Africa	221	408	796	888	984	1 085	1 188	1 292	1 398	1 504	1 608	1 708	1 803
Eastern Africa	66	125	253	282	314	349	386	423	462	500	539	577	614
Middle Africa	26	46	93	106	121	137	154	172	191	211	230	248	266
Northern Africa	53	98	174	190	208	224	240	254	267	279	290	299	306
Southern Africa	16	29	50	52	52	51	50	50	49	48	47	47	47
Western Africa	60	110	226	257	289	323	358	393	429	466	502	537	570
Asia	1 398	2 398	3 680	3 918	4 149	4 371	4 570	4 742	4 887	5 007	5 103	5 175	5 222
Eastern Asia	671	1 097	1 481	1 532	1 576	1 614	1 641	1 656	1 659	1 654	1 642	1 620	1 590
South-central Asia	499	879	1 486	1 615	1 744	1 870	1 989	2 097	2 192	2 276	2 348	2 412	2 464
South-eastern Asia	178	321	520	558	594	628	660	688	711	731	747	759	767
Western Asia	51	100	192	213	235	257	280	302	324	345	365	384	401
Europe	547	676	728	725	720	713	705	696	685	674	661	647	632
Eastern Europe	220	286	305	297	290	283	275	267	258	249	240	231	222
Northern Europe	77	88	94	95	96	97	98	99	100	100	100	100	100
Southern Europe	109	132	146	146	146	145	143	141	138	136	133	129	126
Western Europe	141	169	184	186	187	188	189	189	189	188	187	186	185
Latin America and the Caribbean	167	322	520	558	594	628	659	687	711	732	748	760	768
Caribbean	17	27	38	39	41	42	44	45	45	46	46	46	46
Central America	37	79	135	147	158	168	178	186	194	200	205	209	212
South America	113	216	347	372	396	418	438	456	472	486	497	505	510
Northern America	172	243	316	332	348	364	380	394	408	419	430	439	448
Oceania	13	22	31	33	35	37	38	40	41	43	44	45	46
Australia/New Zealand	10	17	23	24	25	26	27	28	28	29	29	30	30
Melanesia	2	4	7	8	9	9	10	11	12	12	13	13	14
Micronesia	—	—	—	1	1	1	1	1	1	1	1	1	1
Polynesia	—	—	1	1	1	1	1	1	1	1	1	1	1

TABLE I.2. POPULATION OF THE WORLD BY COUNTRY, ESTIMATES AND PROJECTIONS ACCORDING TO VARIANTS: 1950, 1975, 2000, 2025 AND 2050

(*thousands*)

				2025			*2050*		
Country	*1950*	*1975*	*2000*	*Low*	*Medium*	*High*	*Low*	*Medium*	*High*
World*	2 519	4 068	6 071	7 334	7 851	8 365	7 409	8 919	7 409
Afghanistan	8 151	14 373	21 391	42 800	44 940	46 932	60 713	69 517	78 702
Albania	1 215	2 401	3 113	3 345	3 629	3 860	2 946	3 670	4 428
Algeria	8 753	16 018	30 245	39 112	42 429	45 769	39 642	48 667	59 048
American Samoa	19	30	58	91	95	100	113	131	154
Andorra	3	26	66	110	115	121	142	165	195
Angola	4 131	6 187	12 386	23 917	25 162	26 433	37 553	43 131	49 189
Anguilla	5	7	11	15	16	17	17	19	23
Antigua and Barbuda	46	62	72	75	78	81	67	77	87
Argentina	17 150	26 049	37 074	43 496	47 043	49 837	42 981	52 805	62 449
Armenia	1 354	2 826	3 112	2 644	2 866	3 090	1 851	2 334	2 923
Aruba	57	58	93	137	143	150	160	184	216
Australia	8 219	13 900	19 153	22 583	23 205	23 833	23 194	25 560	28 162
Austria	6 935	7 579	8 102	7 823	7 979	8 138	6 797	7 376	8 016
Azerbaijan	2 896	5 689	8 157	9 625	10 222	10 843	9 242	10 942	12 947
Bahamas	79	189	303	344	374	395	317	395	469
Bahrain	116	272	677	964	1 034	1 102	1 067	1 270	1 495
Bangladesh	41 783	75 171	137 952	192 218	208 268	224 653	206 869	254 599	310 028
Barbados	211	246	267	272	283	294	224	258	297
Belarus	7 745	9 367	10 034	8 736	8 950	9 164	6 804	7 539	8 351
Belgium	8 639	9 801	10 251	10 253	10 516	10 778	9 270	10 221	11 267
Belize	69	134	240	328	356	386	340	421	516
Benin	2 046	3 046	6 222	10 420	11 120	11 826	13 077	15 602	18 419
Bermuda	38	63	80	87	90	94	80	92	105
Bhutan	734	1 178	2 063	3 477	3 701	3 930	4 472	5 288	6 178
Bolivia	2 714	4 759	8 317	11 608	12 495	13 383	12 994	15 748	18 837
Bosnia and Herzegovina	2 661	3 747	3 977	4 001	4 183	4 366	3 075	3 564	4 134
Botswana	419	830	1 725	1 465	1 614	1 766	1 043	1 380	1 771
Brazil	53 975	108 124	171 796	200 539	216 372	231 077	189 591	233 140	281 366
British Virgin Islands	5	11	20	28	29	30	31	36	42
Brunei Darussalam	48	161	334	482	527	571	558	685	829
Bulgaria	7 251	8 721	8 099	6 464	6 609	6 750	4 729	5 255	5 845
Burkina Faso	3 960	6 094	11 905	23 200	24 527	25 842	36 590	42 373	48 613
Burundi	2 456	3 680	6 267	11 682	12 328	12 977	16 737	19 459	22 427
Cambodia	4 346	7 098	13 147	20 409	21 899	23 400	24 584	29 567	35 139
Cameroon	4 466	7 563	15 117	19 300	20 831	22 381	20 342	24 948	30 171
Canada	13 737	23 142	30 769	35 320	36 128	36 928	35 858	39 085	42 566
Cape Verde	146	278	436	612	666	721	656	812	994
Cayman Islands	6	14	37	63	67	71	76	89	105
Central African Republic	1 314	2 056	3 715	4 830	5 193	5 559	5 398	6 563	7 874
Chad	2 658	4 096	7 861	14 906	15 770	16 644	21 745	25 359	29 327
Channel Islands	102	127	144	138	141	145	113	126	139
Chile	6 082	10 337	15 224	18 212	19 651	20 507	17 747	21 805	24 926
China	554 760	927 808	1 275 215	1 339 619	1 445 100	1 551 967	1 128 940	1 395 182	1 710 281

TABLE I.2 (*continued*)

Country	1950	1975	2000	2025 Low	2025 Medium	2025 High	2050 Low	2050 Medium	2050 High
China, Hong Kong SAR	1 974	4 396	6 807	8 239	8 492	8 764	8 498	9 431	10 491
China, Macao SAR	190	253	450	529	549	572	513	578	655
Colombia	12 568	25 381	42 120	53 627	58 157	61 086	54 870	67 491	78 164
Comoros	173	318	705	1 182	1 266	1 351	1 521	1 816	2 145
Congo	808	1 544	3 447	6 357	6 750	7 148	9 016	10 643	12 439
Cook Islands	15	19	18	18	18	19	15	17	19
Costa Rica	966	2 051	3 929	5 181	5 621	6 068	5 315	6 512	7 912
Côte d'Ivoire	2 775	6 754	15 827	20 573	22 140	23 725	22 724	27 572	33 050
Croatia	3 850	4 263	4 446	3 975	4 088	4 203	3 194	3 587	4 026
Cuba	5 850	9 306	11 202	10 638	11 479	12 348	8 024	10 074	12 538
Cyprus	494	609	783	828	892	957	728	892	1 083
Czech Republic	8 925	9 997	10 269	9 616	9 806	9 994	7 810	8 553	9 369
Dem. People's Rep. of Korea	10 815	16 018	22 268	22 772	24 665	26 344	20 096	24 966	30 144
Dem. Rep. of the Congo	12 184	23 858	48 571	90 201	95 448	100 760	130 011	151 644	175 399
Dem. Rep. of Timor-Leste	433	672	702	1 118	1 197	1 275	1 191	1 433	1 696
Denmark	4 271	5 060	5 322	5 327	5 469	5 613	4 764	5 273	5 834
Djibouti	62	216	666	934	992	1 051	1 186	1 395	1 626
Dominica	51	72	78	77	80	83	66	76	86
Dominican Republic	2 353	5 047	8 353	10 093	10 955	11 674	9 485	11 876	14 348
Ecuador	3 387	6 907	12 420	15 415	16 704	18 007	15 226	18 724	22 750
Egypt	21 834	39 313	67 784	95 398	103 165	110 897	104 144	127 407	153 889
El Salvador	1 951	4 120	6 209	7 739	8 418	9 110	7 909	9 793	11 988
Equatorial Guinea	226	228	456	763	812	861	993	1 177	1 382
Eritrea	1 140	2 089	3 712	6 827	7 261	7 688	8 865	10 539	12 342
Estonia	1 101	1 432	1 367	984	1 017	1 052	564	657	770
Ethiopia	18 434	33 063	65 590	109 459	116 006	122 601	146 388	170 987	197 850
Faeroe Islands	32	41	46	50	52	54	47	53	61
Falkland Islands (Malvinas)	2	2	3	3	3	4	2	3	4
Fiji	289	576	814	887	965	1 042	760	969	1 209
Finland	4 009	4 711	5 177	5 150	5 289	5 427	4 457	4 941	5 477
France	41 829	52 699	59 296	60 579	64 165	66 651	54 704	64 230	72 835
French Guiana	25	56	164	254	273	293	295	354	423
French Polynesia	61	130	233	292	316	337	290	355	424
Gabon	469	601	1 258	1 771	1 915	2 060	2 039	2 488	3 001
Gambia	294	555	1 312	2 029	2 177	2 328	2 406	2 905	3 470
Georgia	3 527	4 908	5 262	4 217	4 429	4 664	2 929	3 472	4 154
Germany	68 376	78 674	82 282	80 016	81 959	84 197	72 023	79 145	87 621
Ghana	4 900	9 913	19 593	28 411	30 618	32 846	32 665	39 548	47 314
Gibraltar	21	25	27	26	27	28	21	24	27
Greece	7 566	9 047	10 903	10 407	10 707	11 035	8 853	9 814	10 941
Greenland	23	49	56	55	58	60	47	54	61
Grenada	76	91	81	71	74	76	55	63	70
Guadeloupe	210	329	428	451	485	516	382	467	559
Guam	60	95	155	199	215	230	203	248	300
Guatemala	2 969	6 018	11 423	18 079	19 456	20 838	21 649	26 166	31 242
Guinea	2 550	4 077	8 117	12 876	13 704	14 542	16 554	19 591	22 970
Guinea-Bissau	505	651	1 367	2 629	2 774	2 920	4 078	4 719	5 419
Guyana	423	734	759	658	724	774	363	507	647

TABLE I.2 (*continued*)

Country	1950	1975	2000	2025 Low	2025 Medium	2025 High	2050 Low	2050 Medium	2050 High
Haiti	3 261	4 920	8 005	9 891	10 670	11 457	10 222	12 429	14 902
Holy See	1	1	1	1	1	1	1	1	1
Honduras	1 380	3 016	6 457	9 367	10 115	10 873	10 344	12 630	15 226
Hungary	9 338	10 532	10 012	8 660	8 865	9 061	6 828	7 589	8 424
Iceland	143	218	282	302	325	348	274	330	397
India	357 561	620 701	1 016 938	1 265 606	1 369 284	1 474 481	1 241 564	1 531 438	1 870 063
Indonesia	79 538	134 446	211 559	248 395	270 113	291 364	235 492	293 797	360 280
Iran (Islamic Republic of)	16 913	33 353	66 443	83 167	90 927	98 223	85 052	105 485	128 158
Iraq	5 158	11 020	23 224	38 951	41 707	44 485	48 314	57 932	68 746
Ireland	2 969	3 177	3 819	4 335	4 668	5 000	4 156	4 996	5 976
Isle of Man	56	60	74	77	80	83	68	78	89
Israel	1 258	3 358	6 042	8 005	8 598	9 193	8 300	9 989	11 916
Italy	47 104	55 441	57 536	51 978	52 939	53 886	41 385	44 875	48 643
Jamaica	1 403	2 013	2 580	2 996	3 263	3 478	2 953	3 669	4 402
Japan	83 625	111 524	127 034	121 045	123 444	125 915	100 901	109 722	119 563
Jordan	472	1 937	5 035	7 522	8 116	8 715	8 380	10 154	12 167
Kazakhstan	6 703	14 136	15 640	14 547	15 388	16 249	11 583	13 941	16 698
Kenya	6 265	13 578	30 549	36 706	39 917	43 169	35 246	43 984	53 985
Kiribati	35	53	84	107	112	117	112	129	149
Kuwait	152	1 007	2 247	3 694	3 930	4 165	4 212	4 926	5 727
Kyrgyzstan	1 740	3 299	4 921	5 953	6 484	7 022	5 814	7 235	8 893
Lao People's Dem. Republic	1 755	3 024	5 279	8 231	8 635	9 274	9 820	11 448	13 872
Latvia	1 949	2 456	2 373	1 790	1 857	1 918	1 150	1 331	1 530
Lebanon	1 443	2 767	3 478	4 189	4 554	4 795	3 999	4 946	5 794
Lesotho	734	1 138	1 785	1 457	1 608	1 761	1 025	1 377	1 784
Liberia	824	1 605	2 943	5 755	6 081	6 412	8 442	9 821	11 330
Libyan Arab Jamahiriya	1 029	2 446	5 237	7 197	7 785	8 377	7 635	9 248	11 069
Liechtenstein	14	23	33	37	38	40	35	40	46
Lithuania	2 567	3 302	3 501	2 934	3 035	3 135	2 213	2 526	2 886
Luxembourg	296	359	435	566	580	593	656	716	778
Madagascar	4 230	7 903	15 970	28 412	30 249	32 107	39 032	46 292	54 402
Malawi	2 881	5 244	11 370	17 123	18 245	19 380	21 775	25 949	30 583
Malaysia	6 110	12 258	23 001	31 052	33 479	35 841	32 573	39 551	47 292
Maldives	82	137	291	527	559	590	697	819	950
Mali	3 520	6 290	11 904	24 324	25 679	26 984	39 805	45 998	52 562
Malta	312	304	389	407	418	429	362	402	447
Marshall Islands	11	26	51	62	65	67	62	72	82
Martinique	222	328	386	394	424	455	336	413	502
Mauritania	825	1 423	2 645	4 690	4 973	5 253	6 402	7 497	8 691
Mauritius	493	892	1 186	1 306	1 415	1 527	1 176	1 461	1 797
Mexico	27 737	59 098	98 933	119 231	129 866	140 663	112 329	140 228	172 820
Micronesia (Fed. States of)	32	63	107	112	122	132	129	158	192
Monaco	20	25	33	38	40	41	37	42	48
Mongolia	761	1 447	2 500	3 090	3 368	3 650	3 035	3 773	4 637
Montserrat	14	12	4	4	4	5	3	4	6
Morocco	8 953	17 305	29 108	37 735	40 721	43 625	38 560	47 064	56 440
Mozambique	6 442	10 592	17 861	23 732	25 350	26 985	25 991	31 275	37 185
Myanmar	17 832	30 157	47 544	55 169	59 760	64 388	52 380	64 493	78 396

TABLE I.2 (*continued*)

Country	1950	1975	2000	2025 Low	2025 Medium	2025 High	2050 Low	2050 Medium	2050 High
Namibia	511	921	1 894	2 170	2 350	2 531	2 147	2 654	3 225
Nauru	3	7	12	18	20	22	20	27	34
Nepal	8 643	13 395	23 518	35 162	37 831	40 526	41 853	50 810	60 937
Netherlands	10 114	13 666	15 898	16 395	17 123	17 731	14 840	16 954	19 082
Netherlands Antilles	112	166	215	232	250	266	202	249	300
New Caledonia	65	129	215	293	315	338	319	382	454
New Zealand	1 908	3 083	3 784	4 146	4 379	4 614	3 877	4 512	5 244
Nicaragua	1 134	2 497	5 073	7 678	8 318	8 963	8 855	10 868	13 167
Niger	2 500	4 790	10 742	24 527	25 722	26 748	46 937	53 037	59 088
Nigeria	29 790	54 886	114 746	179 755	192 115	204 576	216 388	258 478	305 220
Niue	5	4	2	1	1	2	1	1	1
Northern Mariana Islands	6	15	70	138	145	154	168	191	221
Norway	3 265	4 007	4 473	4 731	4 859	5 043	4 435	4 895	5 521
Occupied Palestinian Terr.	1 005	1 255	3 191	6 483	6 903	7 328	9 447	11 114	12 956
Oman	456	917	2 609	4 494	4 785	5 078	5 755	6 812	7 992
Pakistan	39 659	70 275	142 654	235 001	249 766	264 296	294 302	348 700	407 900
Palau	8	13	19	29	30	31	34	39	46
Panama	860	1 723	2 950	3 975	4 290	4 478	4 205	5 140	5 946
Papua New Guinea	1 798	2 866	5 334	7 847	8 443	9 044	9 197	11 110	13 267
Paraguay	1 488	2 659	5 470	8 551	9 173	9 787	10 064	12 111	14 379
Peru	7 632	15 161	25 952	32 922	35 622	38 340	33 645	41 105	49 611
Philippines	19 996	42 019	75 711	100 185	108 589	117 074	103 183	126 965	154 212
Pitcairn	—	—	—	—	—	—	—	—	—
Poland	24 824	34 015	38 671	36 415	37 337	38 207	29 637	33 004	36 630
Portugal	8 405	9 093	10 016	9 615	9 834	10 050	8 232	9 027	9 888
Puerto Rico	2 218	2 939	3 816	3 769	4 073	4 384	2 976	3 723	4 626
Qatar	25	171	581	743	790	837	735	874	1 031
Republic of Korea	18 859	35 281	46 835	48 463	50 165	51 847	41 413	46 418	52 018
Republic of Moldova	2 341	3 839	4 283	3 882	4 096	4 304	3 030	3 580	4 204
Réunion	248	483	723	862	932	973	824	1 014	1 173
Romania	16 311	21 245	22 480	20 407	20 806	21 192	16 448	18 063	19 807
Russian Federation	102 702	134 233	145 612	121 798	124 428	126 982	91 940	101 456	111 921
Rwanda	2 162	4 410	7 724	11 721	12 509	13 302	14 197	16 973	20 059
Saint Helena	5	5	5	5	5	5	4	5	6
Saint Kitts and Nevis	44	46	42	37	38	39	28	32	36
Saint Lucia	79	105	146	153	167	178	126	163	198
Saint Vincent and the Grenadines	67	96	118	119	130	140	100	129	160
Saint-Pierre-et-Miquelon	5	6	6	6	6	6	5	6	6
Samoa	82	150	173	207	224	241	203	254	312
San Marino	13	20	27	31	32	34	30	34	40
Sao Tome and Principe	60	82	149	233	254	275	285	349	425
Saudi Arabia	3 201	7 251	22 147	37 184	39 751	42 227	46 158	54 738	63 986
Senegal	2 500	4 806	9 393	14 599	15 663	16 738	17 919	21 589	25 720
Serbia and Montenegro	7 131	9 085	10 555	9 795	10 230	10 666	8 090	9 371	10 842
Seychelles	34	59	79	89	93	97	85	97	112
Sierra Leone	1 944	2 933	4 415	7 177	7 593	8 014	8 838	10 339	11 993
Singapore	1 022	2 263	4 016	4 752	4 905	5 057	4 099	4 538	5 025

TABLE I.2 (*continued*)

Country	1950	1975	2000	2025 Low	2025 Medium	2025 High	2050 Low	2050 Medium	2050 High
Slovakia	3 463	4 735	5 391	5 265	5 397	5 525	4 444	4 948	5 509
Slovenia	1 473	1 742	1 990	1 821	1 859	1 894	1 428	1 569	1 721
Solomon Islands	90	193	437	727	783	839	889	1 071	1 278
Somalia	2 264	4 134	8 720	19 967	20 978	21 995	34 677	39 669	45 037
South Africa	13 683	25 804	44 000	38 960	42 962	47 023	31 018	40 243	51 049
Spain	28 009	35 596	40 752	38 781	40 369	41 983	32 863	37 336	42 316
Sri Lanka	7 483	13 481	18 595	19 788	21 464	23 159	16 973	21 172	26 095
Sudan	9 190	16 718	31 437	44 320	47 536	50 779	50 016	60 133	71 475
Suriname	215	364	425	445	486	522	356	459	568
Swaziland	273	515	1 044	999	1 042	1 146	792	948	1 216
Sweden	7 014	8 193	8 856	8 718	9 055	9 347	7 698	8 700	9 736
Switzerland	4 694	6 339	7 173	6 655	6 801	6 945	5 310	5 810	6 355
Syrian Arab Republic	3 495	7 548	16 560	24 930	26 979	29 021	28 123	34 174	40 993
Tajikistan	1 532	3 442	6 089	7 528	8 193	8 878	7 772	9 552	11 683
TFYR Macedonia	1 230	1 676	2 024	2 115	2 199	2 285	1 890	2 156	2 461
Thailand	19 626	41 297	60 925	67 945	73 869	79 923	61 791	77 079	95 307
Togo	1 329	2 264	4 562	7 059	7 551	8 047	8 322	10 005	11 888
Tokelau	2	2	2	1	1	2	1	1	2
Tonga	47	93	101	112	121	130	96	122	152
Trinidad and Tobago	636	1 012	1 289	1 268	1 340	1 416	1 024	1 221	1 450
Tunisia	3 530	5 668	9 519	11 057	12 037	13 023	10 405	12 887	15 775
Turkey	21 484	41 020	68 281	81 868	88 995	96 203	78 797	97 759	119 927
Turkmenistan	1 211	2 520	4 643	6 017	6 549	7 081	6 124	7 541	9 210
Turks and Caicos Islands	5	6	19	31	35	39	29	38	51
Tuvalu	5	6	10	13	13	14	13	15	17
Uganda	5 210	10 771	23 487	51 938	54 883	57 425	89 195	103 248	117 507
Ukraine	37 298	49 016	49 688	39 382	40 775	42 144	27 841	31 749	36 191
United Arab Emirates	70	505	2 820	3 703	3 944	4 187	3 433	4 112	4 899
United Kingdom	49 816	55 426	58 689	61 250	63 287	65 289	59 062	66 166	73 954
United Republic of Tanzania	7 886	16 180	34 837	49 746	53 435	57 166	57 155	69 112	82 573
United States of America	157 813	220 165	285 003	340 978	358 030	375 228	354 878	408 695	469 635
United States Virgin Islands	27	80	109	119	129	138	108	133	161
Uruguay	2 239	2 829	3 342	3 592	3 875	3 997	3 337	4 128	4 660
Uzbekistan	6 314	13 981	24 913	30 885	33 774	36 717	30 173	37 818	46 919
Vanuatu	48	101	197	304	327	351	360	435	519
Venezuela	5 094	12 734	24 277	32 527	35 252	38 028	33 953	41 733	50 808
Viet Nam	27 367	47 974	78 137	96 108	104 649	112 442	95 323	117 693	142 043
Wallis and Futuna Islands	7	9	14	15	16	17	13	16	19
Western Sahara	14	75	285	446	478	509	537	641	754
Yemen	4 316	6 915	18 017	41 171	43 204	45 232	74 233	84 385	95 170
Zambia	2 440	5 068	10 419	13 517	14 401	15 270	15 455	18 528	21 841
Zimbabwe	2 744	6 146	12 650	11 771	12 857	13 910	9 849	12 658	15 696

* Population for the world given in millions.

TABLE I.3. AVERAGE ANNUAL RATE OF CHANGE OF THE WORLD POPULATION BY DEVELOPMENT GROUP, MAJOR AREA AND REGION, ESTIMATES: 1950-2000
(*per cent*)

Development group, major area or region	*1950-1955*	*1955-1960*	*1960-1965*	*1965-1970*	*1970-1975*	*1975-1980*	*1980-1985*	*1985-1990*	*1990-1995*	*1995-2000*
World	1.80	1.84	1.97	2.04	1.94	1.73	1.71	1.72	1.50	1.35
More developed regions	1.20	1.17	1.09	0.83	0.78	0.67	0.59	0.60	0.43	0.34
Less developed regions	2.08	2.14	2.35	2.51	2.36	2.08	2.06	2.04	1.79	1.61
Least developed countries	1.96	2.16	2.32	2.47	2.46	2.47	2.52	2.60	2.69	2.43
Other less developed countries	2.09	2.14	2.35	2.52	2.34	2.03	2.00	1.96	1.66	1.48
Africa	2.19	2.34	2.46	2.60	2.66	2.81	2.86	2.78	2.56	2.35
Eastern Africa	2.24	2.43	2.60	2.77	2.84	2.90	2.96	3.05	2.57	2.62
Middle Africa	1.80	2.08	2.27	2.52	2.59	2.87	2.86	2.88	3.19	2.19
Northern Africa	2.28	2.38	2.41	2.49	2.52	2.60	2.74	2.31	2.04	1.84
Southern Africa	2.29	2.41	2.57	2.63	2.62	2.45	2.52	2.31	2.13	1.52
Western Africa	2.17	2.31	2.41	2.53	2.64	2.95	2.94	2.92	2.82	2.71
Asia	1.95	1.97	2.20	2.41	2.24	1.87	1.85	1.85	1.59	1.41
Eastern Asia	1.80	1.52	1.97	2.42	2.11	1.43	1.32	1.41	1.02	0.84
South-central Asia	2.04	2.31	2.34	2.34	2.32	2.19	2.24	2.20	2.03	1.83
South-eastern Asia	2.08	2.40	2.47	2.52	2.34	2.16	2.13	1.99	1.81	1.55
Western Asia	2.65	2.72	2.73	2.65	2.75	2.81	2.96	2.70	2.40	2.21
Europe	0.99	0.99	0.96	0.68	0.59	0.49	0.39	0.44	0.16	0.02
Eastern Europe	1.48	1.33	1.04	0.70	0.66	0.64	0.56	0.48	-0.06	-0.35
Northern Europe	0.40	0.53	0.77	0.56	0.39	0.20	0.25	0.34	0.24	0.27
Southern Europe	0.83	0.77	0.82	0.68	0.81	0.80	0.38	0.34	0.10	0.30
Western Europe	0.66	0.84	1.04	0.70	0.42	0.15	0.16	0.49	0.55	0.27
Latin America and the Caribbean	2.65	2.69	2.75	2.57	2.45	2.32	2.10	1.90	1.72	1.56
Caribbean	1.78	1.86	2.07	1.85	1.76	1.49	1.56	1.40	1.13	0.98
Central America	2.74	3.04	3.10	3.14	3.03	2.67	2.25	2.05	2.01	1.86
South America	2.75	2.70	2.72	2.47	2.32	2.29	2.11	1.91	1.67	1.51
Northern America	1.71	1.77	1.46	1.10	0.97	1.01	1.02	1.02	1.09	1.07
Oceania	2.15	2.16	2.11	1.93	2.07	1.14	1.56	1.57	1.61	1.41
Australia/New Zealand	2.26	2.19	2.06	1.82	2.02	0.81	1.32	1.39	1.36	1.13
Melanesia	1.62	1.93	2.23	2.28	2.41	2.43	2.41	2.13	2.51	2.39
Micronesia	2.10	2.20	2.60	2.42	2.10	2.28	3.12	3.04	2.09	1.60
Polynesia	2.54	2.69	2.91	2.75	1.24	1.48	1.34	1.38	1.11	1.12

TABLE I.4. AVERAGE ANNUAL RATE OF CHANGE OF THE WORLD POPULATION BY DEVELOPMENT GROUP, MAJOR AREA AND REGION, MEDIUM VARIANT: 2000-2050
(*per cent*)

Development group, major area or region	*2000-2005*	*2005-2010*	*2010-2015*	*2015-2020*	*2020-2025*	*2025-2030*	*2030-2035*	*2035-2040*	*2040-2045*	*2045-2050*
World	1.22	1.13	1.05	0.93	0.81	0.70	0.60	0.51	0.42	0.33
More developed regions	0.25	0.20	0.16	0.11	0.06	0.02	-0.03	-0.08	-0.12	-0.14
Less developed regions	1.46	1.34	1.24	1.10	0.95	0.82	0.71	0.61	0.50	0.40
Least developed countries	2.41	2.31	2.16	2.05	1.93	1.80	1.65	1.50	1.36	1.23
Other less developed countries	1.30	1.18	1.07	0.91	0.75	0.61	0.50	0.39	0.29	0.18
Africa	2.20	2.06	1.94	1.82	1.69	1.58	1.46	1.34	1.21	1.08
Eastern Africa	2.23	2.16	2.09	1.99	1.86	1.74	1.62	1.49	1.37	1.25
Middle Africa	2.67	2.60	2.45	2.35	2.25	2.11	1.93	1.74	1.56	1.39
Northern Africa	1.86	1.74	1.54	1.34	1.15	1.01	0.89	0.75	0.60	0.48
Southern Africa	0.62	-0.14	-0.28	-0.24	-0.31	-0.35	-0.31	-0.25	-0.19	-0.15
Western Africa	2.55	2.38	2.21	2.03	1.88	1.76	1.64	1.50	1.35	1.19
Asia	1.25	1.15	1.04	0.89	0.74	0.60	0.49	0.38	0.28	0.18
Eastern Asia	0.67	0.57	0.48	0.33	0.18	0.04	-0.06	-0.15	-0.27	-0.38
South-central Asia	1.66	1.54	1.40	1.24	1.05	0.89	0.75	0.63	0.53	0.43
South-eastern Asia	1.40	1.25	1.12	0.98	0.83	0.68	0.55	0.43	0.32	0.21
Western Asia	2.07	1.96	1.82	1.65	1.53	1.41	1.28	1.14	1.00	0.86
Europe	-0.09	-0.14	-0.18	-0.23	-0.27	-0.31	-0.35	-0.39	-0.43	-0.46
Eastern Europe	-0.48	-0.48	-0.49	-0.56	-0.62	-0.67	-0.71	-0.74	-0.78	-0.82
Northern Europe	0.24	0.19	0.20	0.21	0.20	0.14	0.07	0.01	-0.01	-0.02
Southern Europe	0.08	-0.06	-0.17	-0.26	-0.32	-0.34	-0.37	-0.44	-0.52	-0.60
Western Europe	0.24	0.16	0.11	0.07	0.03	-0.01	-0.06	-0.11	-0.15	-0.16
Latin America and the Caribbean	1.41	1.26	1.11	0.96	0.82	0.69	0.57	0.44	0.32	0.20
Caribbean	0.87	0.80	0.69	0.57	0.44	0.33	0.21	0.11	0.00	-0.10
Central America	1.66	1.46	1.27	1.11	0.94	0.77	0.65	0.52	0.38	0.23
South America	1.37	1.22	1.09	0.94	0.81	0.70	0.57	0.44	0.32	0.22
Northern America	1.00	0.94	0.89	0.84	0.76	0.66	0.57	0.49	0.44	0.40
Oceania	1.22	1.08	0.98	0.91	0.85	0.76	0.63	0.52	0.45	0.39
Australia/New Zealand	0.93	0.80	0.72	0.66	0.59	0.51	0.40	0.32	0.26	0.24
Melanesia	2.12	1.86	1.68	1.58	1.50	1.35	1.17	0.99	0.85	0.72
Micronesia	1.74	1.57	1.41	1.24	1.06	1.09	0.93	0.78	0.64	0.52
Polynesia	1.28	1.23	1.15	1.02	0.89	0.76	0.62	0.49	0.36	0.23

TABLE I.5. AVERAGE ANNUAL RATE OF CHANGE OF THE WORLD POPULATION BY COUNTRY, ESTIMATES AND MEDIUM VARIANT: 1950-1975, 1975-2000, 2000-2025 AND 2025-2050
(*per cent*)

Country	*1950-1975*	*1975-2000*	*2000-2025*	*2025-2050*
World	1.92	1.60	1.03	0.51
Afghanistan	2.27	1.59	2.97	1.74
Albania	2.72	1.04	0.61	0.05
Algeria	2.42	2.54	1.35	0.55
American Samoa	1.78	2.66	2.02	1.26
Andorra	8.48	3.79	2.22	1.42
Angola	1.62	2.78	2.83	2.16
Anguilla	1.24	1.91	1.41	0.78
Antigua and Barbuda	1.17	0.58	0.34	-0.08
Argentina	1.67	1.41	0.95	0.46
Armenia	2.94	0.39	-0.33	-0.82
Aruba	0.07	1.88	1.71	1.01
Australia	2.10	1.28	0.77	0.39
Austria	0.36	0.27	-0.06	-0.31
Azerbaijan	2.70	1.44	0.90	0.27
Bahamas	3.48	1.89	0.84	0.22
Bahrain	3.42	3.65	1.69	0.82
Bangladesh	2.35	2.43	1.65	0.80
Barbados	0.61	0.34	0.23	-0.37
Belarus	0.76	0.27	-0.46	-0.69
Belgium	0.50	0.18	0.10	-0.11
Belize	2.65	2.34	1.58	0.67
Benin	1.59	2.86	2.32	1.35
Bermuda	1.99	0.96	0.50	0.05
Bhutan	1.89	2.24	2.34	1.43
Bolivia	2.25	2.23	1.63	0.93
Bosnia and Herzegovina	1.37	0.24	0.20	-0.64
Botswana	2.74	2.93	-0.27	-0.63
Brazil	2.78	1.85	0.92	0.30
British Virgin Islands	2.79	2.41	1.50	0.85
Brunei Darussalam	4.84	2.92	1.82	1.05
Bulgaria	0.74	-0.30	-0.81	-0.92
Burkina Faso	1.72	2.68	2.89	2.19
Burundi	1.62	2.13	2.71	1.83
Cambodia	1.96	2.47	2.04	1.20
Cameroon	2.11	2.77	1.28	0.72
Canada	2.09	1.14	0.64	0.31
Cape Verde	2.57	1.80	1.70	0.80
Cayman Islands	3.53	4.00	2.39	1.16
Central African Republic	1.79	2.37	1.34	0.94
Chad	1.73	2.61	2.78	1.90
Channel Islands	0.88	0.50	-0.09	-0.47
Chile	2.12	1.55	1.02	0.42
China	2.06	1.27	0.50	-0.14
China, Hong Kong SAR	3.20	1.75	0.88	0.42

TABLE I.5 (*continued*)

Country	*1950-1975*	*1975-2000*	*2000-2025*	*2025-2050*
China, Macao SAR	1.14	2.30	0.80	0.21
Colombia	2.81	2.03	1.29	0.60
Comoros	2.44	3.19	2.34	1.44
Congo	2.59	3.21	2.69	1.82
Cook Islands	1.02	-0.14	0.00	-0.34
Costa Rica	3.01	2.60	1.43	0.59
Côte d'Ivoire	3.56	3.41	1.34	0.88
Croatia	0.41	0.17	-0.34	-0.52
Cuba	1.86	0.74	0.10	-0.52
Cyprus	0.84	1.00	0.52	0.00
Czech Republic	0.45	0.11	-0.18	-0.55
Dem. People's Rep. of Korea	1.57	1.32	0.41	0.05
Dem. Rep. of the Congo	2.69	2.84	2.70	1.85
Dem. Rep. of Timor-Leste	1.76	0.17	2.13	0.72
Denmark	0.68	0.20	0.11	-0.15
Djibouti	4.99	4.51	1.59	1.36
Dominica	1.40	0.29	0.12	-0.25
Dominican Republic	3.05	2.02	1.08	0.32
Ecuador	2.85	2.35	1.19	0.46
Egypt	2.35	2.18	1.68	0.84
El Salvador	2.99	1.64	1.22	0.60
Equatorial Guinea	0.04	2.78	2.30	1.49
Eritrea	2.42	2.30	2.68	1.49
Estonia	1.05	-0.19	-1.18	-1.75
Ethiopia	2.34	2.74	2.28	1.55
Faeroe Islands	1.02	0.44	0.54	0.09
Falkland Islands (Malvinas)	-0.65	1.76	0.30	-0.11
Fiji	2.76	1.38	0.68	0.02
Finland	0.65	0.38	0.09	-0.27
France	0.92	0.47	0.32	0.00
French Guiana	3.15	4.31	2.03	1.04
French Polynesia	3.04	2.35	1.21	0.47
Gabon	0.99	2.95	1.68	1.05
Gambia	2.55	3.44	2.03	1.15
Georgia	1.32	0.28	-0.69	-0.97
Germany	0.56	0.18	-0.02	-0.14
Ghana	2.82	2.73	1.79	1.02
Gibraltar	0.81	0.27	-0.09	-0.41
Greece	0.71	0.75	-0.07	-0.35
Greenland	2.99	0.55	0.11	-0.26
Grenada	0.73	-0.47	-0.38	-0.65
Guadeloupe	1.79	1.06	0.50	-0.15
Guam	1.88	1.95	1.29	0.57
Guatemala	2.83	2.56	2.13	1.19
Guinea	1.88	2.75	2.09	1.43
Guinea-Bissau	1.02	2.97	2.83	2.13
Guyana	2.20	0.13	-0.19	-1.43
Haiti	1.65	1.95	1.15	0.61
Holy See	-0.89	0.32	—	—

TABLE I.5 (*continued*)

Country	*1950-1975*	*1975-2000*	*2000-2025*	*2025-2050*
Honduras	3.13	3.04	1.80	0.89
Hungary	0.48	-0.20	-0.49	-0.62
Iceland	1.69	1.03	0.56	0.07
India	2.21	1.97	1.19	0.45
Indonesia	2.10	1.81	0.98	0.34
Iran (Islamic Republic of)	2.72	2.76	1.25	0.59
Iraq	3.04	2.98	2.34	1.31
Ireland	0.27	0.74	0.80	0.27
Isle of Man	0.28	0.83	0.32	-0.09
Israel	3.93	2.35	1.41	0.60
Italy	0.65	0.15	-0.33	-0.66
Jamaica	1.44	0.99	0.94	0.47
Japan	1.15	0.52	-0.11	-0.47
Jordan	5.64	3.82	1.91	0.90
Kazakhstan	2.98	0.40	-0.06	-0.40
Kenya	3.09	3.24	1.07	0.39
Kiribati	1.71	1.83	1.14	0.57
Kuwait	7.56	3.21	2.24	0.90
Kyrgyzstan	2.56	1.60	1.10	0.44
Lao People's Dem. Republic	2.18	2.23	1.97	1.13
Latvia	0.93	-0.14	-0.98	-1.33
Lebanon	2.61	0.91	1.08	0.33
Lesotho	1.76	1.80	-0.42	-0.62
Liberia	2.67	2.42	2.90	1.92
Libyan Arab Jamahiriya	3.46	3.05	1.59	0.69
Liechtenstein	2.09	1.40	0.63	0.16
Lithuania	1.01	0.23	-0.57	-0.73
Luxembourg	0.77	0.77	1.15	0.84
Madagascar	2.50	2.81	2.55	1.70
Malawi	2.40	3.10	1.89	1.41
Malaysia	2.79	2.52	1.50	0.67
Maldives	2.06	3.00	2.61	1.53
Mali	2.32	2.55	3.08	2.33
Malta	-0.10	0.98	0.29	-0.15
Marshall Islands	3.55	2.74	0.94	0.41
Martinique	1.57	0.64	0.38	-0.11
Mauritania	2.18	2.48	2.53	1.64
Mauritius	2.37	1.14	0.71	0.13
Mexico	3.03	2.06	1.09	0.31
Micronesia (Fed. States of)	2.72	2.11	0.53	1.04
Monaco	0.88	1.14	0.70	0.21
Mongolia	2.57	2.19	1.19	0.45
Montserrat	-0.55	-4.42	0.14	0.04
Morocco	2.64	2.08	1.34	0.58
Mozambique	1.99	2.09	1.40	0.84
Myanmar	2.10	1.82	0.91	0.30
Namibia	2.36	2.88	0.86	0.49
Nauru	3.49	2.18	1.95	1.21
Nepal	1.75	2.25	1.90	1.18

TABLE I.5 (*continued*)

Country	*1950-1975*	*1975-2000*	*2000-2025*	*2025-2050*
Netherlands	1.20	0.60	0.30	-0.04
Netherlands Antilles	1.59	1.03	0.60	-0.02
New Caledonia	2.75	2.05	1.52	0.77
New Zealand	1.92	0.82	0.58	0.12
Nicaragua	3.16	2.84	1.98	1.07
Niger	2.60	3.23	3.49	2.89
Nigeria	2.44	2.95	2.06	1.19
Niue	-0.38	-2.84	-1.27	-1.36
Northern Mariana Islands	3.47	6.17	2.92	1.09
Norway	0.82	0.44	0.33	0.03
Occupied Palestinian Territory	0.89	3.73	3.09	1.90
Oman	2.79	4.18	2.43	1.41
Pakistan	2.29	2.83	2.24	1.33
Palau	2.01	1.71	1.78	1.07
Panama	2.78	2.15	1.50	0.72
Papua New Guinea	1.86	2.48	1.84	1.10
Paraguay	2.32	2.89	2.07	1.11
Peru	2.75	2.15	1.27	0.57
Philippines	2.97	2.36	1.44	0.63
Pitcairn	-2.53	-0.18	—	—
Poland	1.26	0.51	-0.14	-0.49
Portugal	0.31	0.39	-0.07	-0.34
Puerto Rico	1.13	1.04	0.26	-0.36
Qatar	7.70	4.89	1.23	0.40
Republic of Korea	2.51	1.13	0.27	-0.31
Republic of Moldova	1.98	0.44	-0.18	-0.54
Réunion	2.66	1.61	1.02	0.34
Romania	1.06	0.23	-0.31	-0.57
Russian Federation	1.07	0.33	-0.63	-0.82
Rwanda	2.85	2.24	1.93	1.22
Saint Helena	0.14	-0.07	—	—
Saint Kitts and Nevis	0.12	-0.32	-0.41	-0.67
Saint Lucia	1.13	1.32	0.56	-0.12
Saint Vincent and Grenadines	1.42	0.83	0.40	-0.05
Saint-Pierre-et-Miquelon	1.00	0.29	-0.04	-0.38
Samoa	2.42	0.56	1.04	0.50
San Marino	1.74	1.22	0.76	0.26
Sao Tome and Principe	1.24	2.38	2.13	1.27
Saudi Arabia	3.27	4.47	2.34	1.28
Senegal	2.61	2.68	2.05	1.28
Serbia and Montenegro	0.97	0.60	-0.13	-0.35
Seychelles	2.19	1.17	0.66	0.18
Sierra Leone	1.65	1.64	2.17	1.23
Singapore	3.18	2.30	0.80	-0.31
Slovakia	1.25	0.52	0.00	-0.35
Slovenia	0.67	0.53	-0.27	-0.68
Solomon Islands	3.06	3.27	2.33	1.26
Somalia	2.41	2.99	3.51	2.55
South Africa	2.54	2.13	-0.10	-0.26

TABLE I.5 (*continued*)

Country	*1950-1975*	*1975-2000*	*2000-2025*	*2025-2050*
Spain	0.96	0.54	-0.04	-0.31
Sri Lanka	2.35	1.29	0.57	-0.05
Sudan	2.39	2.53	1.65	0.94
Suriname	2.11	0.62	0.53	-0.23
Swaziland	2.54	2.83	-0.01	-0.38
Sweden	0.62	0.31	0.09	-0.16
Switzerland	1.20	0.49	-0.21	-0.63
Syrian Arab Republic	3.08	3.14	1.95	0.95
Tajikistan	3.24	2.28	1.19	0.61
TFYR Macedonia	1.24	0.76	0.33	-0.08
Thailand	2.98	1.56	0.77	0.17
Togo	2.13	2.80	2.02	1.13
Tokelau	0.02	-0.13	-0.11	-0.11
Tonga	2.72	0.31	0.73	0.04
Trinidad and Tobago	1.86	0.97	0.16	-0.37
Tunisia	1.89	2.07	0.94	0.27
Turkey	2.59	2.04	1.06	0.38
Turkmenistan	2.93	2.44	1.38	0.56
Turks and Caicos Islands	1.28	4.22	2.56	0.35
Tuvalu	1.18	1.95	0.98	0.44
Uganda	2.90	3.12	3.40	2.53
Ukraine	1.09	0.05	-0.79	-1.00
United Arab Emirates	7.93	6.88	1.34	0.17
United Kingdom	0.43	0.23	0.30	0.18
United Republic of Tanzania	2.87	3.07	1.71	1.03
United States of America	1.33	1.03	0.91	0.53
United States Virgin Islands	4.35	1.25	0.68	0.11
Uruguay	0.94	0.67	0.59	0.25
Uzbekistan	3.18	2.31	1.22	0.45
Vanuatu	3.00	2.67	2.04	1.14
Venezuela	3.67	2.58	1.49	0.68
Viet Nam	2.25	1.95	1.17	0.47
Wallis and Futuna Islands	1.03	1.85	0.38	-0.05
Western Sahara	6.80	5.32	2.07	1.17
Yemen	1.89	3.83	3.50	2.68
Zambia	2.92	2.88	1.29	1.01
Zimbabwe	3.23	2.89	0.07	-0.06

TABLE I.6. TEN COUNTRIES OR AREAS WITH THE HIGHEST AND TEN COUNTRIES OR AREAS WITH THE LOWEST AVERAGE ANNUAL RATE OF CHANGE, ESTIMATES AND MEDIUM VARIANT: 2000-2005 AND 2045-2050
(*per cent*)

	2000-2005			*2045-2050*	
Rank	*Country or area*[1]	*Average annual rate of change (per cent)*	*Rank*	*Country or area*[1]	*Average annual rate of change (per cent)*
		A. Highest rate of population change			
1	Somalia	4.17	1	Niger	2.40
2	Liberia	4.05	2	Yemen	2.19
3	Afghanistan	3.88	3	Somalia	2.05
4	Sierra Leone	3.80	4	Uganda	2.04
5	Eritrea	3.65	5	Mali	1.81
6	Niger	3.62	6	Burkina Faso	1.78
7	Occupied Palestinian Terr.	3.57	7	Angola	1.74
8	Yemen	3.52	8	Guinea-Bissau	1.74
9	Kuwait	3.46	9	Liberia	1.59
10	Uganda	3.24	10	Burundi	1.54
		B. Lowest rate of population change			
1	Estonia	-1.10	1	Estonia	-2.04
2	Latvia	-0.93	2	Latvia	-1.51
3	Georgia	-0.92	3	Georgia	-1.17
4	Bulgaria	-0.85	4	Ukraine	-1.11
5	Ukraine	-0.78	5	Armenia	-1.09
6	Lithuania	-0.58	6	Bulgaria	-1.00
7	Russian Federation	-0.57	7	Russian Federation	-0.86
8	Hungary	-0.46	8	Slovenia	-0.84
9	Armenia	-0.45	9	Italy	-0.80
10	Belarus	-0.45	10	Bosnia and Herzegovina	-0.80
	WORLD	1.22		WORLD	0.33

[1]Countries or areas with 1 million persons or more in 2000. The world population includes the population of all countries and areas including those with less than 100 000 persons.

TABLE I.7. AVERAGE ANNUAL INCREMENTS OF THE WORLD POPULATION BY DEVELOPMENT GROUP AND MAJOR AREA, ESTIMATES AND MEDIUM VARIANT: 1950-2050
(*millions*)

Development group or major area	*1950-1955*	*1955-1960*	*1960-1965*	*1965-1970*	*1970-1975*	*1975-1980*	*1980-1985*	*1985-1990*	*1990-1995*	*1995-2000*
World	47.4	53.1	62.7	71.5	75.1	73.3	79.3	86.5	82.2	79.2
More developed regions	10.1	10.4	10.2	8.2	8.0	7.1	6.4	6.7	5.0	4.0
Less developed regions	37.3	42.7	52.4	63.3	67.1	66.2	72.8	79.8	77.1	75.3
Least developed countries	4.1	5.0	6.0	7.3	8.2	9.3	10.8	12.6	14.9	15.3
Other less developed countries	33.2	37.7	46.4	56.1	58.9	56.9	62.1	67.2	62.3	60.0
Africa	5.1	6.1	7.3	8.7	10.2	12.3	14.4	16.1	17.0	17.6
Asia	28.7	31.9	39.6	48.7	50.9	47.0	51.0	56.1	52.4	49.9
Europe	5.6	5.8	5.9	4.4	3.9	3.4	2.7	3.1	1.2	0.1
Latin America and the Caribbean	4.7	5.5	6.4	6.9	7.4	7.9	8.0	8.0	7.9	7.8
Northern America	3.1	3.5	3.1	2.5	2.3	2.5	2.7	2.8	3.2	3.3
Oceania	0.3	0.3	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.4

Medium

	2000-2005	*2005-2010*	*2010-2015*	*2015-2020*	*2020-2025*	*2025-2030*	*2030-2035*	*2035-2040*	*2040-2045*	*2045-2050*
World	76.6	75.3	73.4	68.6	62.2	55.7	49.6	43.1	36.2	28.9
More developed regions	3.0	2.4	1.9	1.4	0.8	0.2	-0.4	-1.0	-1.4	-1.7
Less developed regions	73.6	72.9	71.5	67.2	61.4	55.6	50.0	44.0	37.6	30.6
Least developed countries	17.1	18.4	19.3	20.3	21.1	21.6	21.7	21.3	20.7	19.9
Other less developed countries	56.5	54.5	52.2	46.9	40.4	34.0	28.4	22.7	16.9	10.7
Africa	18.5	19.3	20.1	20.6	20.9	21.2	21.2	20.8	20.0	19.0
Asia	47.6	46.3	44.3	39.9	34.4	28.9	24.0	19.3	14.5	9.3
Europe	-0.7	-1.0	-1.3	-1.6	-1.9	-2.1	-2.4	-2.6	-2.8	-2.9
Latin America and the Caribbean	7.6	7.2	6.8	6.2	5.5	4.8	4.1	3.3	2.4	1.5
Northern America	3.2	3.2	3.2	3.1	2.9	2.6	2.3	2.1	1.9	1.8
Oceania	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2

TABLE I.8. DISTRIBUTION OF COUNTRIES AND POPULATION ORDERED BY POPULATION SIZE AND MAJOR AREA, ESTIMATES: 2000

Range of population size	*Africa*	*Asia*	*Europe*	*Latin America and the Caribbean*	*Northern America*	*Oceania*	*World*	*Per cent of world total*
				Number of countries				
100+................	1	6	1	1	1	—	10	4.4
50-100.............	2	5	5	1	—	—	13	5.7
20-50...............	9	9	3	4	1	—	26	11.4
1-20.................	35	23	26	17	—	3	104	45.6
<1....................	9	7	12	23	3	21	75	32.9
TOTAL	56	50	47	46	5	24	228	100
				Population in 2000 (millions)				
100+................	115	2 911	146	172	285	—	3 629	59.8
50-100.............	133	349	307	99	—	—	889	14.6
20-50...............	292	255	102	129	31	—	809	13.3
1-20.................	252	160	171	116	—	28	728	12.0
<1....................	4	4	2	4	0	3	16	0.3
TOTAL	796	3 680	728	520	316	31	6 071	100

TABLE I.9. COUNTRIES ACCOUNTING FOR 75 PER CENT OF THE WORLD POPULATION BY ORDER OF POPULATION SIZE, ESTIMATES AND MEDIUM VARIANT: 1950, 2000 AND 2050

Rank	*Country*	*Population in 1950 (thousands)*	*Percentage*	*Cumulated percentage*	*Rank*	*Country*	*Population in 2000 (thousands)*	*Percentage*	*Cumulated percentage*	*Rank*	*Country*	*Population in 2050 (thousands)*	*Percentage*	*Cumulated percentage*
1	China	554 760	22	22	1	China	1 275 215	21	21	1	India	1 531 438	17	17
2	India	357 561	14	36	2	India	1 016 938	17	38	2	China	1 395 182	16	33
3	United States of America	157 813	6	42	3	United States of America	285 003	5	42	3	United States of America	408 695	5	37
4	Russian Federation	102 702	4	47	4	Indonesia	211 559	3	46	4	Pakistan	348 700	4	41
5	Japan	83 625	3	50	5	Brazil	171 796	3	49	5	Indonesia	293 797	3	45
6	Indonesia	79 538	3	53	6	Russian Federation	145 612	2	51	6	Nigeria	258 478	3	47
7	Germany	68 376	3	56	7	Pakistan	142 654	2	54	7	Bangladesh	254 599	3	50
8	Brazil	53 975	2	58	8	Bangladesh	137 952	2	56	8	Brazil	233 140	3	53
9	United Kingdom	49 816	2	60	9	Japan	127 034	2	58	9	Ethiopia	170 987	2	55
10	Italy	47 104	2	62	10	Nigeria	114 746	2	60	10	Dem. Rep. of the Congo	151 644	2	57
11	France	41 829	2	63	11	Mexico	98 933	2	61	11	Mexico	140 228	2	58
12	Bangladesh	41 783	2	65	12	Germany	82 282	1	63	12	Egypt	127 407	1	60
13	Pakistan	39 659	2	67	13	Viet Nam	78 137	1	64	13	Philippines	126 965	1	61
14	Ukraine	37 298	1	68	14	Philippines	75 711	1	65	14	Viet Nam	117 693	1	62
15	Nigeria	29 790	1	69	15	Turkey	68 281	1	66	15	Japan	109 722	1	64
16	Spain	28 009	1	70	16	Egypt	67 784	1	68	16	Iran (Islamic Rep. of)	105 485	1	65
17	Mexico	27 737	1	72	17	Iran (Islamic Republic of)	66 443	1	69	17	Uganda	103 248	1	66
18	Viet Nam	27 367	1	73	18	Ethiopia	65 590	1	70	18	Russian Federation	101 456	1	67
19	Poland	24 824	1	74	19	Thailand	60 925	1	71	19	Turkey	97 759	1	68
20	Egypt	21 834	1	74	20	France	59 296	1	72	20	Yemen	84 385	1	69
21	Turkey	21 484	1	75	21	United Kingdom	58 689	1	73	21	Germany	79 145	1	70
					22	Italy	57 536	1	74	22	Thailand	77 079	1	71
					23	Ukraine	49 688	1	74	23	Afghanistan	69 517	1	72
					24	Dem. Rep. of the Congo	48 571	1	75	24	United Rep. of Tanzania	69 112	1	72
										25	Colombia	67 491	1	73
										26	United Kingdom	66 166	1	74
										27	Myanmar	64 493	1	75

TABLE I.10. COUNTRIES ACCOUNTING FOR 75 PER CENT OF POPULATION GROWTH IN THE WORLD, ESTIMATES AND MEDIUM VARIANT: 1950-1955, 2000-2005 AND 2045-2050

Rank	*Country*	*Population increase 1950-1955 (thousands)*	*Per cent*	*Cumulated percentage*	*Rank*	*Country*	*Population increase 2000-2005 (thousands)*	*Per cent*	*Cumulated percentage*	*Rank*	*Country*	*Population increase 2045-2050 (thousands)*	*Per cent*	*Cumulated percentage*
1	China	54 245	23	23	1	India	79 979	21	21	1	India	19 798	14	14
2	India	37 535	16	39	2	China	47 058	12	33	2	Pakistan	16 784	12	25
3	United States of America	13 261	6	44	3	Pakistan	18 496	5	38	3	Nigeria	11 378	8	33
4	Brazil	8 912	4	48	4	Nigeria	15 490	4	42	4	Ethiopia	10 724	7	41
5	Russian Federation	8 699	4	52	5	United States of America	15 035	4	46	5	Dem. Rep. of the Congo	10 609	7	48
6	Indonesia	6 908	3	55	6	Bangladesh	14 641	4	50	6	Uganda	9 998	7	55
7	Japan	6 190	3	57	7	Indonesia	13 754	4	53	7	Yemen	8 743	6	61
8	Bangladesh	4 512	2	59	8	Brazil	11 001	3	56	8	United States of America	8 325	6	67
9	Pakistan	4 078	2	61	9	Ethiopia	8 598	2	58	9	Bangladesh	6 662	5	71
10	Mexico	4 001	2	63	10	Dem. Rep. of the Congo	7 508	2	60	10	Niger	6 006	4	76
11	Nigeria	3 535	1	64	11	Mexico	7 452	2	62					
12	Philippines	3 226	1	65	12	Philippines	7 098	2	64					
13	Thailand	3 133	1	67	13	Egypt	7 094	2	66					
14	Turkey	3 126	1	68	14	Viet Nam	5 448	1	68					
15	Egypt	2 858	1	69	15	Turkey	5 021	1	69					
16	Ukraine	2 801	1	70	16	Afghanistan	4 580	1	70					
17	Viet Nam	2 686	1	72	17	Iran (Islamic Rep. of)	4 233	1	71					
18	Republic of Korea	2 563	1	73	18	Uganda	4 137	1	72					
19	Poland	2 457	1	74	19	Sudan	3 603	1	73					
20	Iran (Islamic Rep. of)	2 177	1	75	20	United Rep. of Tanzania	3 528	1	74					
					21	Colombia	3 480	1	75					

TABLE I.11. POPULATION OF COUNTRIES WITH LESS THAN 100 000 INHABITANTS IN 2000, ESTIMATES AND MEDIUM VARIANT: 1950, 2000 AND 2050

Rank	*Major area or country*	*1950*	*2000*	*2050*
	Africa			
1	Saint Helena	4 972	5 049	5 049
2	Seychelles	34 026	78 830	97 460
	Europe			
3	Andorra	3 082	66 239	164 628
4	Faeroe Islands	31 713	45 713	53 459
5	Gibraltar	20 769	27 183	24 001
6	Holy See	905	785	785
7	Liechtenstein	13 648	32 660	39 799
8	Monaco	20 179	33 446	41 925
9	San Marino	12 780	26 757	34 475
10	Isle of Man	55 841	73 612	77 897
	Latin America and the Caribbean			
11	Antigua and Barbuda	46 301	71 703	76 530
12	British Virgin Islands	5 409	19 833	35 662
13	Cayman Islands	5 594	36 759	89 129
14	Dominica	51 101	77 813	75 502
15	Falkland Islands (Malvinas)	2 261	2 989	3 139
16	Grenada	75 802	81 002	62 579
17	Montserrat	13 522	3 900	4 088
18	Aruba	57 299	93 271	184 111
19	Saint Kitts and Nevis	44 301	42 196	32 146
20	Anguilla	5 121	11 250	19 415
21	Turks and Caicos Islands	4 677	18 502	38 315
	Northern America			
22	Bermuda	38 282	79 868	91 692
23	Greenland	23 139	56 184	54 096
24	Saint-Pierre-et-Miquelon	4 577	6 321	5 693
	Oceania			
25	American Samoa	18 982	57 579	130 928
26	Cook Islands	14 708	18 325	16 840
27	Kiribati	34 733	84 029	128 817
28	Nauru	2 953	12 183	26 810
29	Niue	4 515	2 017	1 045
30	Northern Mariana Islands	6 286	70 028	190 815
31	Marshall Islands	10 606	51 072	71 547
32	Palau	7 584	19 220	39 232
33	Pitcairn	130	66	66
34	Tokelau	1 570	1 529	1 449
35	Tuvalu	4 675	10 204	14 540
36	Wallis and Futuna Islands	7 050	14 470	15 718
	TOTAL	689 093	1 332 587	1 949 382

TABLE I.12. COUNTRIES EXPERIENCING REDUCTIONS OF POPULATION, ESTIMATES AND MEDIUM VARIANT: 2000-2005, 2045-2050 AND 2000-2050
(*thousands*)

Rank	*Country*	*Population in 2000*	*Population in 2005*	*Population decrement in 2000-2005*	*Rank*	*Country*	*Population in 2045*	*Population in 2050*	*Population decrement in 2045-2050*	*Rank*	*Country*	*Population decrement in 2000-2050*
1	Russian Federation	145 612	141 553	-4 059.1	1	China	1 421 133	1 395 182	-25 951.5	1	Russian Federation	-44 156.3
2	Ukraine	49 688	47 782	-1 905.8	2	Russian Federation	105 897	101 456	-4 441.0	2	Ukraine	-17 939.5
3	Bulgaria	8 099	7 763	-335.0	3	Japan	112 818	109 722	-3 095.9	3	Japan	-17 312.0
4	Italy	57 536	57 253	-283.9	4	Italy	46 711	44 875	-1 835.9	4	Italy	-12 661.2
5	Kazakhstan	15 640	15 364	-275.1	5	Ukraine	33 564	31 749	-1 814.9	5	Poland	-5 667.5
6	Romania	22 480	22 228	-252.1	6	Republic of Korea	47 735	46 418	-1 317.2	6	Romania	-4 417.1
7	Georgia	5 262	5 026	-236.0	7	Poland	34 026	33 004	-1 022.3	7	South Africa	-3 756.6
8	Hungary	10 012	9 784	-228.0	8	Spain	38 245	37 336	-909.1	8	Spain	-3 416.1
9	Belarus	10 034	9 809	-224.9	9	Romania	18 705	18 063	-642.0	9	Germany	-3 137.5
10	Poland	38 671	38 516	-155.5	10	Germany	79 727	79 145	-582.3	10	Bulgaria	-2 843.2
11	Latvia	2 373	2 265	-107.6	11	Kazakhstan	14 407	13 941	-466.3	11	Belarus	-2 494.4
12	Lithuania	3 501	3 401	-99.2	12	Cuba	10 483	10 074	-409.1	12	Hungary	-2 423.1
13	Estonia	1 367	1 294	-73.0	13	France	64 607	64 230	-376.5	13	Georgia	-1 789.6
14	Armenia	3 112	3 043	-69.7	14	Sri Lanka	21 486	21 172	-313.3	14	Czech Republic	-1 716.3
15	Czech Republic	10 269	10 216	-53.3	15	South Africa	40 550	40 243	-306.6	15	Kazakhstan	-1 698.5
16	Serbia and Montenegro	10 555	10 513	-42.2	16	Belarus	7 845	7 539	-306.0	16	Switzerland	-1 363.2
17	Croatia	4 446	4 405	-40.9	17	Czech Republic	8 835	8 553	-281.8	17	Serbia and Montenegro	-1 183.8
18	Republic of Moldova	4 283	4 259	-24.2	18	Bulgaria	5 524	5 255	-268.7	18	Cuba	-1 128.4
19	Switzerland	7 173	7 157	-16.0	19	Hungary	7 853	7 589	-263.7	19	Greece	-1 089.0
20	Slovenia	1 990	1 979	-10.4	20	Greece	10 054	9 814	-240.2	20	Latvia	-1 041.8
21	Grenada	81	80	-1.1	21	Thailand	77 309	77 079	-230.0	21	Portugal	-988.9
22	Saint Kitts and Nevis	42	42	-0.6	22	Portugal	9 251	9 027	-224.1	22	Lithuania	-974.3
23	Niue	2	2	-0.1	23	Switzerland	6 023	5 810	-213.9	23	Croatia	-859.5
24	Tokelau	2	2	-0.0	24	Serbia and Montenegro	9 583	9 371	-211.3	24	Armenia	-778.7
					25	Georgia	3 682	3 472	-209.8	25	Austria	-725.2
					26	Austria	7 523	7 376	-146.9	26	Estonia	-709.7
					27	Bosnia and Herzegovina	3 709	3 564	-145.2	27	Republic of Moldova	-702.4
					28	Singapore	4 674	4 538	-135.3	28	Slovakia	-442.8
					29	Armenia	2 464	2 334	-130.5	29	Slovenia	-420.7
					30	Netherlands	17 081	16 954	-127.3	30	Republic of Korea	-417.2
					31	Slovakia	5 068	4 948	-119.7	31	Bosnia and Herzegovina	-412.8

TABLE I.12 (*continued*)

Rank	*Country*	*Population in 2000*	*Population in 2005*	*Population decrement in 2000-2005*	*Rank*	*Country*	*Population in 2045*	*Population in 2050*	*Population decrement in 2045-2050*	*Rank*	*Country*	*Population decrement in 2000-2050*
					32	Republic of Moldova	3 700	3 580	-119.2	32	Lesotho	-408.1
					33	Puerto Rico	3 831	3 723	-107.7	33	Botswana	-345.6
					34	Croatia	3 691	3 587	-104.7	34	Guyana	-252.0
					35	Latvia	1 435	1 331	-104.2	35	Finland	-235.9
					36	Lithuania	2 629	2 526	-102.8	36	Sweden	-156.3
					37	Dem. People's Rep. of Korea	25 068	24 966	-101.7	37	Swaziland	-96.4
					38	Belgium	10 319	10 221	-97.2	38	Puerto Rico	-92.6
					39	Sweden	8 780	8 700	-80.2	39	Trinidad and Tobago	-68.1
					40	Finland	5 019	4 941	-77.5	40	Denmark	-49.2
					41	Estonia	728	657	-70.7	41	Belgium	-29.1
					42	Slovenia	1 636	1 569	-67.3	42	Channel Islands	-18.8
					43	Denmark	5 336	5 273	-63.4	43	Grenada	-18.4
					44	Guyana	564	507	-57.4	44	Saint Kitts and Nevis	-10.1
					45	Lesotho	1 418	1 377	-41.4	45	Barbados	-9.6
					46	Botswana	1 418	1 380	-38.6	46	Gibraltar	-3.2
					47	Albania	3 706	3 670	-35.4	47	Dominica	-2.3
					48	Trinidad and Tobago	1 255	1 221	-34.0	48	Greenland	-2.1
					49	United Arab Emirates	4 141	4 112	-28.3	49	Cook Islands	-1.5
					50	TFYR Macedonia	2 181	2 156	-24.9	50	Niue	-1.0
					51	Norway	4 918	4 895	-23.4	51	Saint-Pierre-et-Miquelon	-0.6
					52	Fiji	984	969	-14.7	52	Tokelau	-0.1
					53	Swaziland	963	948	-14.7			
					54	Zimbabwe	12 672	12 658	-14.4			
					55	Suriname	473	459	-14.0			
					56	New Zealand	4 523	4 512	-11.1			
					57	Guadeloupe	477	467	-10.5			
					58	Barbados	267	258	-8.8			
					59	Martinique	419	413	-6.1			
					60	Cyprus	897	892	-5.4			
					61	Mauritius	1 466	1 461	-4.7			

TABLE I.12 (*continued*)

Rank	*Country*	*Population in 2000*	*Population in 2005*	*Population decrement in 2000-2005*	*Rank*	*Country*	*Population in 2045*	*Population in 2050*	*Population decrement in 2045-2050*	*Rank*	*Country*	*Population decrement in 2000-2050*
					62	Malta	407	402	-4.3			
					63	Channel Islands	130	126	-4.1			
					64	Saint Lucia	166	163	-3.3			
					65	Saint Vincent and the Grenadines	131	129	-2.5			
					66	Grenada	65	63	-2.4			
					67	Netherlands Antilles	251	249	-2.1			
					68	Tonga	124	122	-2.0			
					69	Iceland	332	330	-1.7			
					70	Dominica	77	76	-1.4			
					71	Saint Kitts and Nevis	33	32	-1.3			
					72	Greenland	55	54	-1.1			
					73	Isle of Man	79	78	-0.9			
					74	Antigua and Barbuda	77	77	-0.8			
					75	Turks and Caicos Islands	39	38	-0.8			
					76	Gibraltar	25	24	-0.6			
					77	Bermuda	92	92	-0.5			
					78	Cook Islands	17	17	-0.4			
					79	Faeroe Islands	54	53	-0.2			
					80	Wallis and Futuna Islands	16	16	-0.2			
					81	Saint-Pierre-et-Miquelon	6	6	-0.1			
					82	Niue	1	1	-0.1			

II. POPULATION AGE COMPOSITION

Population age composition is important for many reasons. The proportions of children and the elderly have much to do with the balance of national expenditures on schools, child care, immunization, and reproductive health, as against expenditures on old-age social security systems and health care for chronic and degenerative disease. The ratio of the elderly to persons of working age is a fundamental consideration in the design of public pension arrangements, and the ratio has its micro-level expression in the age structure of the family, which affects the possibilities for private care of children and the elderly. Political clout may also be linked to relative population proportions, as famously argued by Preston (1984). Moreover, as was noted in chapter I, age structure alters the way in which the forces of fertility and mortality are expressed in rates of population growth.

This chapter will provide a sketch of current age structures and their likely evolution over the course of the projection period, placing emphasis on the differences by level of development. A summary view of age structure is given in figure II.1, which shows, by sex, the percentage of population in each 5-year age group in the year 2000.

The more developed regions, least developed countries, and other less developed countries present the distinctive age profiles so often seen in the pages of demographic textbooks. The legacy of high fertility is clearly evident in the pyramid for the least developed countries, whose wide base testifies to the relatively high crude birth rates found in these development groups.[1] Suggestions of fertility decline are apparent in the pyramid for the other less developed countries, which is drawn in at the base by comparison with the least developed countries. Note, too, that at the top of the age pyramid for the other less developed countries, there are more women in evidence than men. This feature is even more pronounced in the population pyramid for the more developed regions, in which women clearly outnumber men at the older ages. Also notable is the relative evenness of population proportions across age groups in the more developed regions, which is indicative of lower fertility rates coupled with higher survival probabilities to all ages.

These pyramids are point-in-time snapshots of age distribution, and their contours are shaped not only by long-term levels of fertility, mortality, and migration, but also by recent trends. Levels and trends are not easily distinguished in any one set of age pyramids. To read the evidence correctly, we must explore the evolution of age structures over time.

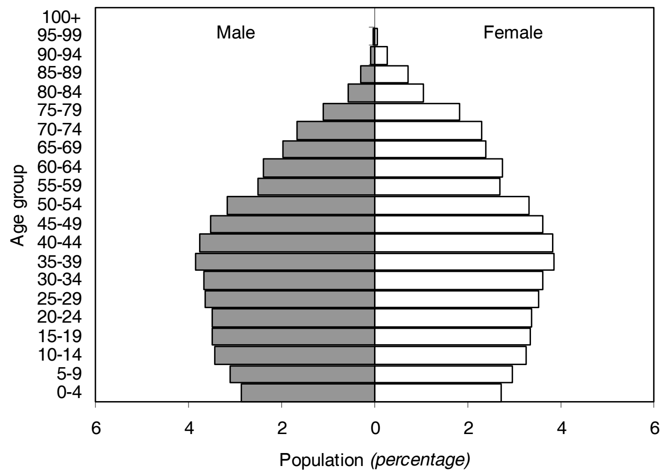
A. The evolution of age structures

It is a common practice in analyses of economic growth to examine the level of national income per capita and its rate of growth. Changes in population age structure over time have much to do with these central measures of economic performance. The rate of growth of income per capita is the sum of the rate of growth of income per person of working age and the rate of growth in the proportion of population of working age. If other things held equal, changes in population age structure must translate point-for-point into changes in the growth rate of income per capita.

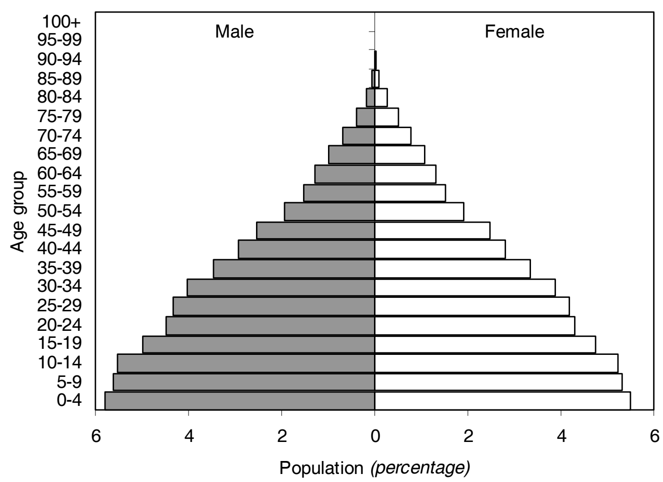
Figure II.2 shows the estimated and projected changes in the working-age population proportions for more developed, least developed, and other less developed countries. Over the coming decades, the less developed regions will be experiencing increases in their working-age proportions, and, by the compositional argument given above, so long as that proportion rises, the effects will be seen in economic growth rates.[2] Some authors describe the period of rising working-age proportions as a demographic "bonus" period (e.g., Bloom et al., 2000) during which compositional changes in population temporarily boost levels of income per capita and economic growth rates. As is evident in the figures, the bonus period is expected to last through the end of the projection period in the least developed countries, but for other less developed countries the working-age

Figure II.1. Population pyramids by development group: 2000

A. More developed regions



B. Other less developed countries



C. Least developed countries

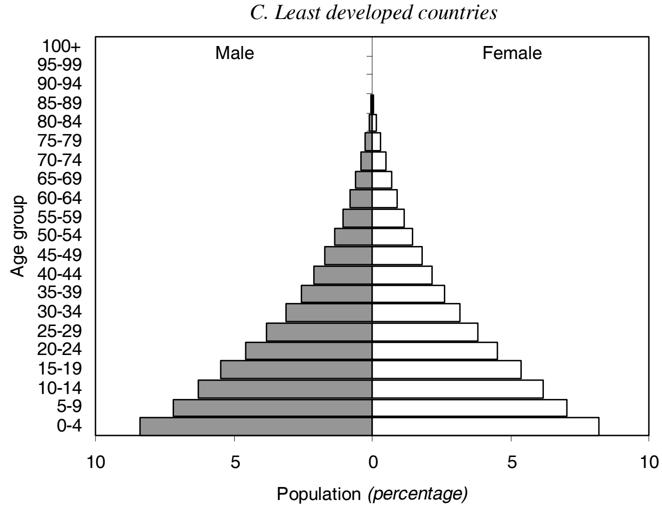
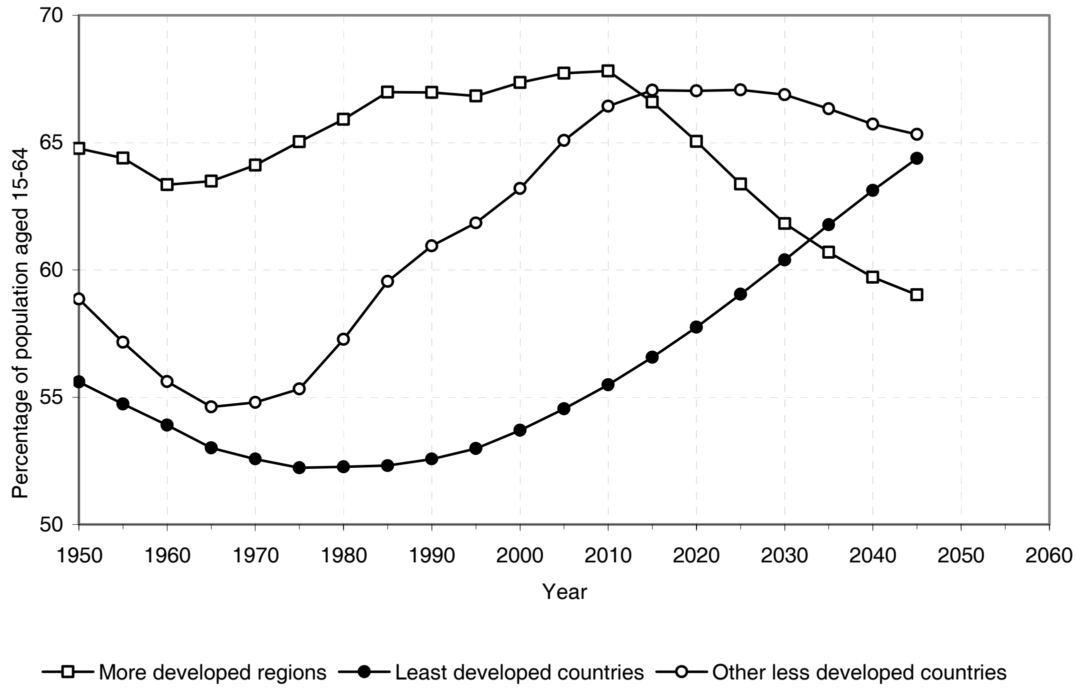


Figure II.2. Percentage of population aged 15–64, by development group, estimates and medium variant: 1950–2050



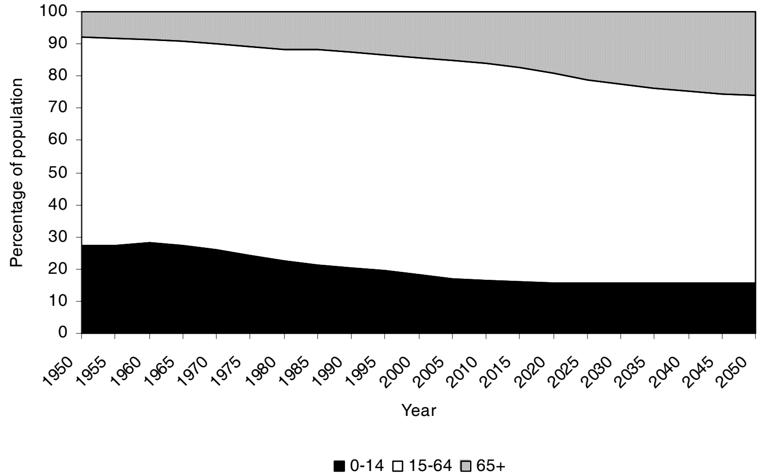
proportion will begin to turn down by about 2020. In the more developed regions, the working-age proportion is expected to begin its descent about a decade from now.

Figure II.3 presents a fuller description of the estimated and projected changes in age structure, with attention to proportions of population aged 65 and above, 15–64, and under 15. The more developed regions already show much higher proportions of the elderly than the other two groups of less developed regions, and the elderly proportions are expected to substantially increase through 2050 (medium variant), rising from 14 per cent in the year 2000 to 26 per cent by the end of the projection. Meanwhile, the proportion of children and youth under 15 will be slightly decreasing, from 18 per cent in 2000 to 16 per cent by 2050. The major change anticipated for the more developed regions is thus, in effect, a transfer of population from the working ages to ages 65 and above. To express the changes differently, the ratio of the elderly population to the population of children and youth will increase, from about 0.8 in 2000 to an expected ratio of 1.6 in 2050.

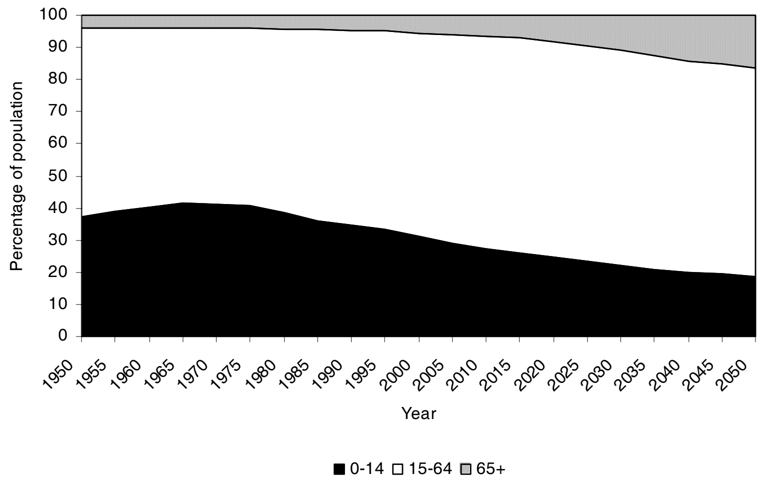
In the less developed world, qualitatively similar changes are underway, but the relative sizes of the three age groups are quite different from their sizes in more developed regions. For example, the proportion of elderly in the least developed countries is expected to rise, but only from 3 to 6 per cent according to the medium projection. The larger change expected in these countries is the sharp decline in the proportion of children and youth under 15 years of age, which will fall from 43 per cent in 2000 to 28 per cent in 2050. In the other less developed countries, the proportion of children and youth will fall from 31 to 19 per cent over the period 2000–2050, while the elderly proportion rises from 5 to 17 per cent. If these projections prove accurate, by mid-century the less developed world as a whole will have achieved an age structure much like that of today's more developed regions. Because many of the world's most populous nations are in the "other less developed countries" category, such percentage changes imply large changes in

Figure II.3. Percentage of population aged 0-14, 15–64, and 65 or over, by development group, estimates and medium variant: 1950–2050

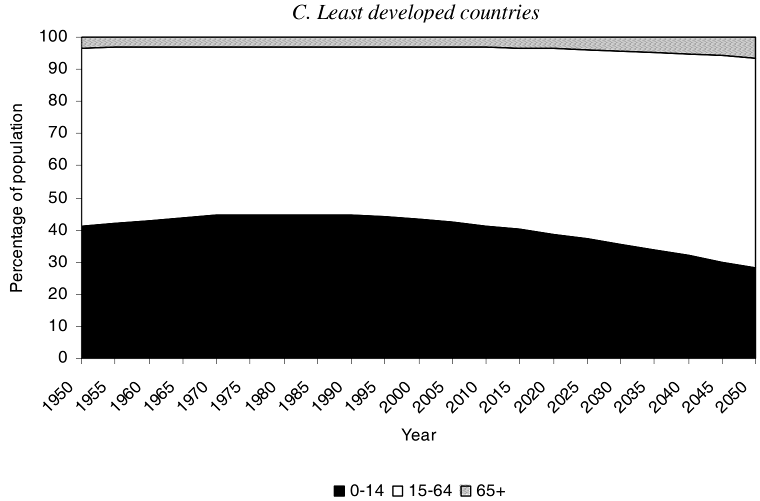
A. More developed regions



B. Other less developed countries



C. Least developed countries



absolute numbers of the elderly and the under-15 age groups.

The world's major geographic regions will each participate in the trend toward population aging, but at widely differing levels. Figure II.4 summarizes the changes anticipated for these regions between the year 2000 and 2050. Europe will probably have the highest share of elderly in its populations in 2050, as it does today, while Africa will continue to exhibit the lowest share, owing to its legacy of relatively high fertility and the prospects that, for many African countries, fertility will remain above replacement even at the end of the projection period. The fertility variant adopted in the projections makes some difference on the margin, as can be seen in figure II.5. Low, medium, and high projected fertility are associated, respectively, with high, medium, and low shares of the elderly. The constant fertility variant implies a continuation of low fertility in the more developed regions, whereas in Africa, much of Asia, and Latin America, the constant fertility variant implies higher levels of fertility than anticipated in the other variants. These differences are also evident in the shares of population aged 65 and above.

We may summarize this discussion by reference to the median age of populations, trends in which are depicted in figure II.6 by level of development. In 1950, the median age of the more developed regions was only about 28 years, but the median is projected to rise to some 45 years by 2050. In the least developed countries, with their higher fertility rates, the median age in 1950 was just under 20 years, and, although increases in the median are expected over the upcoming years, the median is not thought likely to attain 30 years even by the end of the projection period. The other less developed countries, by contrast, which in 1950 had a median age only slightly above that of the least developed

Figure II.4. Percentage of population aged 65 or over, by major area, estimates and medium variant: 2000 and 2050

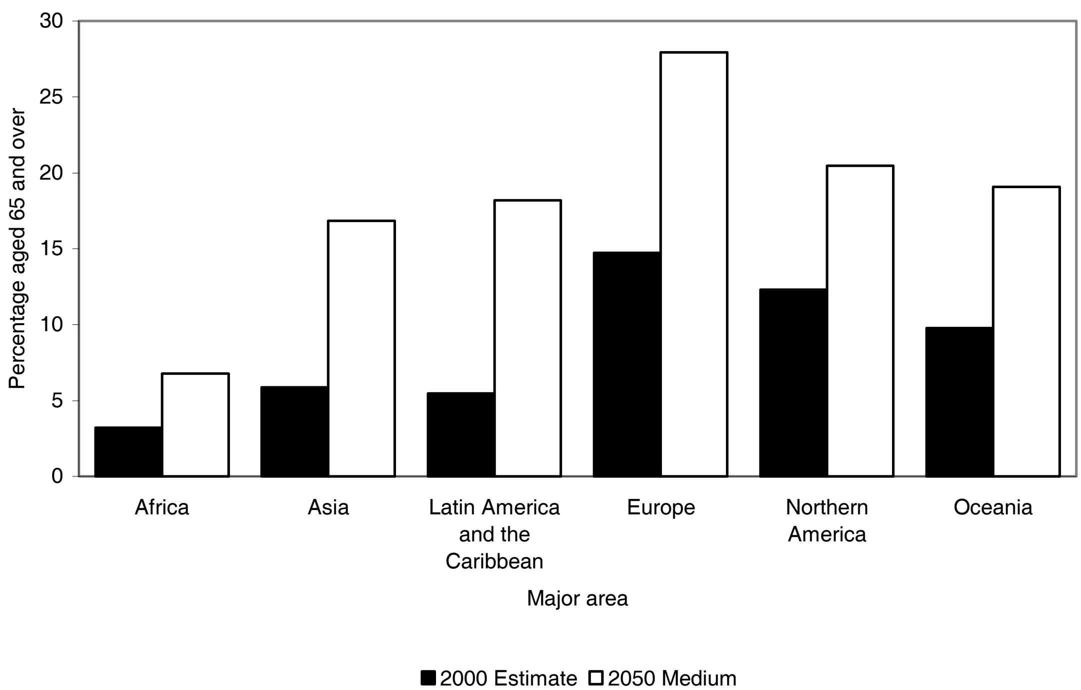


Figure II.5. Percentage of population aged 65 or over, by major area and projection variant: 2050

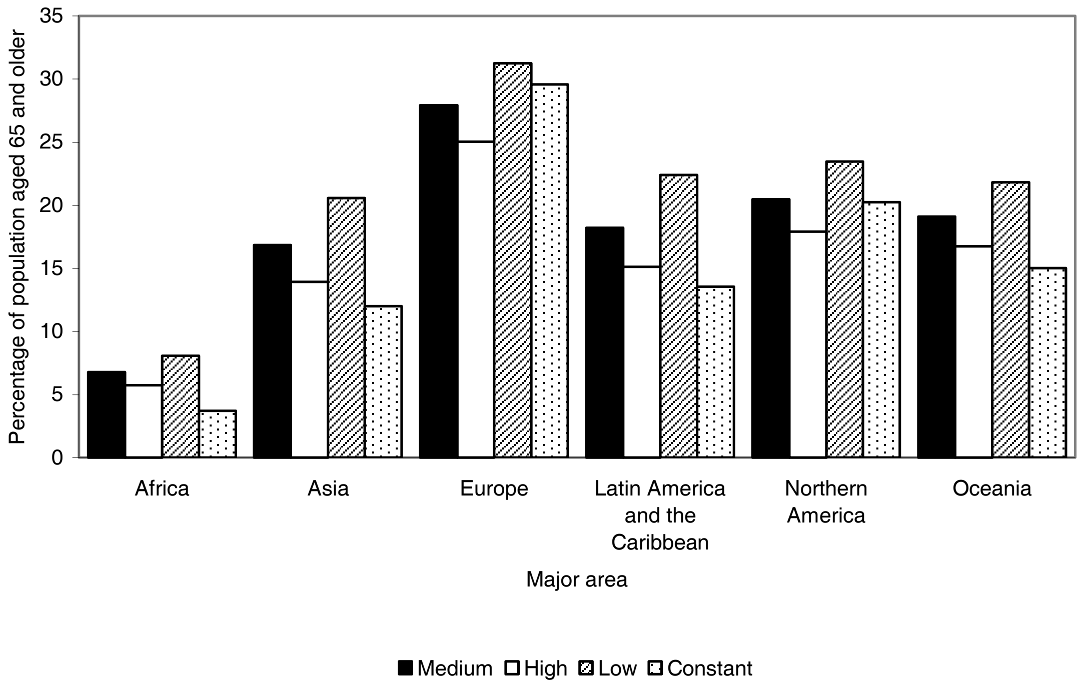
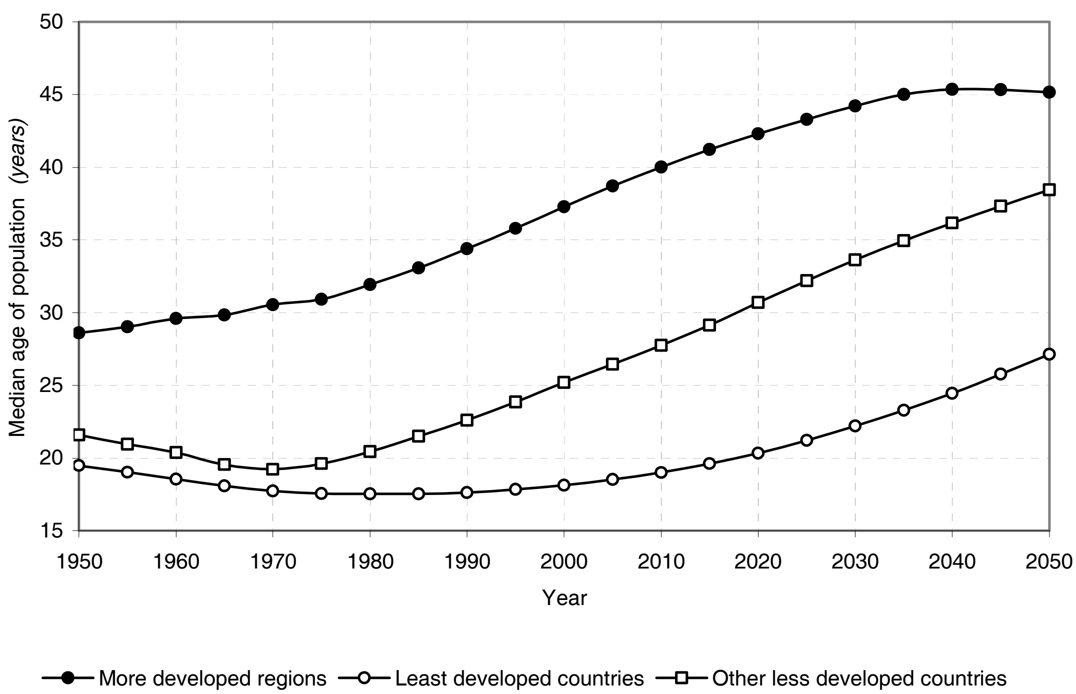


Figure II.6. Median age of population, by development group, estimates and medium variant: 1950–2050



countries, are expected to attain a median age of 38 years by the end of the projection.

B. Age composition of the elderly population

As population aging continues to take place around the world, it becomes increasingly important to differentiate among the age groups of the elderly. Figure II.7 focuses solely upon the elderly (those aged 65 and older), showing how this population is distributed among three age sub-groups: those aged 65–80, 80–90, and 90 and above. In many ways, the patterns seen in the distribution of the elderly populations across country level of development closely resemble those seen in the age structures of populations as a whole.

In the more developed regions, for instance, the percentage of those 90 and above is expected to rise, from 3 to 9 per cent of all elderly by 2050, while the percentage of the "younger old" aged 65 to 80 declines from 79 to 64 per cent, and the percentages in the middle range (those aged 80–90) rising from 20 to 27 per cent. Such changes in the age composition of the elderly population itself would be expected to have profound implications for the distribution of health care expenditures, among other things.

Similar trends are expected to characterize the elderly populations of the least developed and other less developed countries, but for these regions the prospects for old-age survival are not expected to permit the percentage of those 90 and above to reach the levels anticipated for more developed regions. In the least developed countries, only 1 per cent of all elderly are expected to be aged 90 or older by 2050, and among the other less developed countries, only 4 per cent. Hence, although the trends stemming from improving old-age survivorship are similar across the three regions, important differences in the age composition of the elderly population are expected to persist.

C. Age structures and demographic transitions

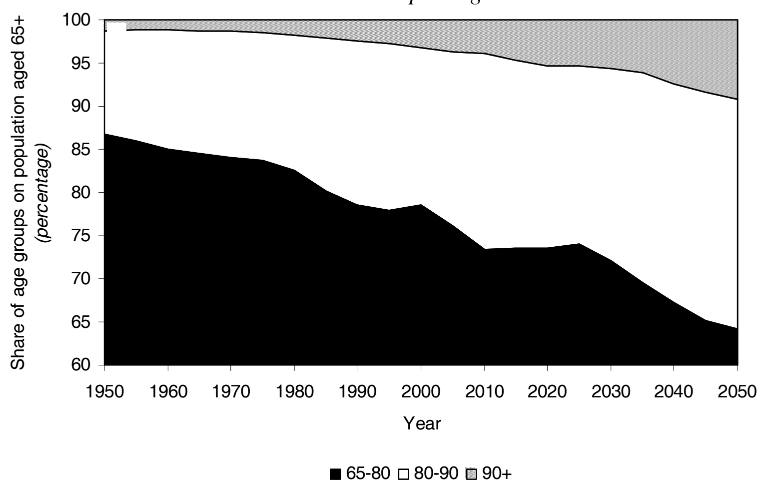
The changes in age structure that have been described are explicable in terms of the transitions underway in both fertility and mortality rates. (International migration is a comparatively weak influence on the average, although in some countries it exerts important effects on age structure.) Declines in fertility have the effect of reducing the proportion of children and, on balance, raising the proportion of the elderly. Thus fertility decline is often associated with population aging. Indeed, the deeper reductions in fertility envisioned for the less developed world in the *2002 Revision* result in faster population aging in these regions than was previously projected.

The influence of mortality decline is more complex, and is dependent on the stage of mortality transition (and thus on country level of development). The initial stage of mortality decline is one in which mortality risks in infancy and childhood tends to fall more, in proportional terms, than do risks for prime-age adults and the elderly. Declines in risk at ages 0–5 exert an influence much like that of fertility increases: they tend to raise the population rate of growth and increase the proportion of children in the population. In this way, the initial stages of mortality decline have the seemingly paradoxical effect of making the population as a whole grow younger, even as the probabilities of survival to the middle and older ages increase and individuals expect to grow older. Later, as levels of life expectancy approach 70 years, the continuation of mortality decline increasingly takes the form of reductions in the risks facing the elderly. These changes tend to increase the proportion of the elderly in the population as a whole, and are thus associated with both individual and population aging.

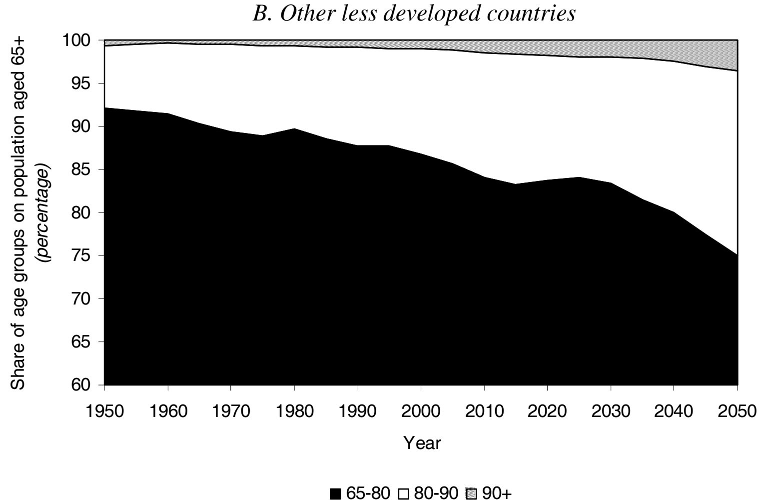
The rise in the working-age proportion of the population—referred to earlier as the period of "demographic bonus"—is produced by a particular sequence of declines in mortality and fertility rates. As mortality rates decline in infancy and childhood,

Figure II.7. Age composition of people aged 65 or over by broad age groups and development group, estimates and medium variant: 1950–2050

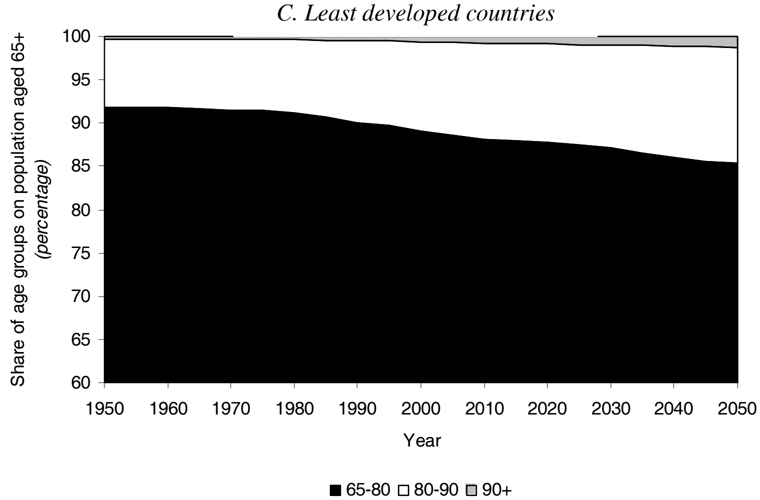
A. More developed regions



B. Other less developed countries



C. Least developed countries



this initially generates a larger-than-typical cohort of survivors to the young adult and working ages. When mortality decline is then followed by a sharp decline in fertility, as was the case in Eastern and parts of South-eastern Asia (Bloom and Williamson, 1998), this second transition has the effect of compressing the size of subsequent cohorts of children relative to what they would have been, so that the large surviving cohorts entering the working years account for a larger-than-typical percentage of the population as a whole. The net effect, then, is to increase the working-age share so long as both mortality and fertility continue to decline in this manner. When they cease to decline, the working-age share plateaus, and, absent further change, would approach a constant. However, once mortality rates begin to decline at the older ages, this raises the proportion of elderly and reduces the share of population in the working ages, a phenomenon that is already beginning to appear in the more developed regions (and which is well advanced in some of these countries). In short, the appearance and subsequent disappearance of the demographic bonus is attributable to a sequence of transitions in fertility and mortality. Why mortality and fertility should decline in this manner is the subject of the following two chapters.

D. A GUIDE TO THE ANNEX TABLES

The annex tables provide some additional information on the age composition of populations. They contain information about size and proportion of broad age groups for aggregates of countries (annex tables II.1 and II.2), provide summary measures for the age composition in the form the median age (annex table II.3) or the dependency ratio (annex table II.5), and list the oldest and the youngest countries in the world (annex table II.4).

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NOTES

[1]If very finely-disaggregated age data were available, such that the proportion of newborns could be graphed at the bottom of the age pyramid, the width of the base would be interpretable as a crude birth rate. This interpretation of the bottom-most age group is not strictly correct when broader 5-year age categories are employed, because then the width of the base is also affected by mortality risks in infancy and childhood. Nevertheless, in most cases the width of the base provides a good visual indicator of fertility levels.

[2]This assumed that changes in age structure leave income per person of working age unaffected. See National Research Council (1986) for a careful account of the early literature on age structure, population growth, and the implications for income per worker. Birdsall et al. (2003) provide a recent reassessment. There remains much controversy about the existence, direction, and strength of such effects.

LIST OF ANNEX TABLES

TABLE II.1. AGE COMPOSITION OF THE WORLD POPULATION BY DEVELOPMENT GROUP, MAJOR AREA AND REGION: 2000

Development group, major area or region	*Population (thousands)*			*Percentage*			*Sex ratio (males per 100 females)*		
	0-14	*15-59*	*60+*	*0-14*	*15-59*	*60+*	*0-14*	*15-59*	*60+*
World	1 828 175	3 635 980	606 426	30.1	59.9	10.0	105.6	102.8	81.4
More developed regions	218 859	743 219	231 794	18.3	62.3	19.4	105.1	99.8	71.0
Less developed regions	1 609 316	2 892 760	374 632	33.0	59.3	7.7	105.7	103.6	88.5
Least developed countries	288 765	346 968	32 023	43.2	52.0	4.8	102.4	99.4	86.3
Other less developed countries	1 320 551	2 545 792	342 609	31.4	60.5	8.1	106.4	104.2	88.7
Africa	339 631	415 983	40 056	42.7	52.3	5.0	101.8	98.1	83.6
Eastern Africa	115 139	126 187	11 188	45.6	50.0	4.4	100.7	95.8	84.0
Middle Africa	42 722	45 893	4 345	46.0	49.4	4.7	100.2	97.2	79.4
Northern Africa	62 132	100 298	11 184	35.8	57.8	6.4	104.3	100.4	86.2
Southern Africa	17 676	29 845	2 927	35.0	59.2	5.8	101.0	95.8	68.6
Western Africa	101 961	113 759	10 413	45.1	50.3	4.6	102.4	99.6	86.7
Asia	1 119 233	2 238 343	322 161	30.4	60.8	8.8	107.1	105.5	88.9
Eastern Asia	353 107	961 133	166 870	23.8	64.9	11.3	110.7	105.7	88.0
South-central Asia	528 430	852 604	105 015	35.6	57.4	7.1	106.4	107.0	92.3
South-eastern Asia	168 536	314 405	37 414	32.4	60.4	7.2	103.4	99.6	84.4
Western Asia	69 159	110 201	12 862	36.0	57.3	6.7	104.2	108.1	85.9
Europe	127 382	453 196	147 408	17.5	62.3	20.2	105.1	99.6	67.6
Eastern Europe	55 161	192 586	56 791	18.1	63.2	18.6	104.8	97.3	58.4
Northern Europe	17 933	56 954	19 236	19.1	60.5	20.4	105.2	99.2	74.9
Southern Europe	22 911	91 245	31 666	15.7	62.6	21.7	105.8	101.0	75.7
Western Europe	31 377	112 410	39 715	17.1	61.3	21.6	105.1	102.8	72.1
Latin America and the Caribbean	165 828	312 818	41 583	31.9	60.1	8.0	103.7	97.5	81.6
Caribbean	11 103	22 762	3 808	29.5	60.4	10.1	103.8	98.5	86.8
Central America	47 786	78 378	9 049	35.3	58.0	6.7	104.1	95.4	85.3
South America	106 939	211 678	28 726	30.8	60.9	8.3	103.6	98.1	79.7
Northern America	68 083	196 730	51 102	21.6	62.3	16.2	105.0	99.5	77.1
Oceania	8 018	18 909	4 117	25.8	60.9	13.3	106.4	102.1	85.7
Australia/New Zealand	4 796	14 409	3 732	20.9	62.8	16.3	105.4	101.1	83.5
Melanesia	2 823	3 865	308	40.4	55.2	4.4	108.1	104.4	114.5
Micronesia	181	283	35	36.3	56.8	6.9	106.1	110.4	95.7
Polynesia	217	352	43	35.5	57.5	7.0	107.2	108.8	91.7

TABLE II.2. AGE COMPOSITION OF THE WORLD POPULATION BY DEVELOPMENT GROUP, MAJOR AREA AND REGION, MEDIUM VARIANT: 2050

Development group, major area or region	Population (thousands)			Percentage			Sex ratio (males per 100 females)		
	0-14	15-59	60+	0-14	15-59	60+	0-14	15-59	60+
World	1 793 203	5 218 270	1 907 251	20.1	58.5	21.4	104.7	103.6	83.8
More developed regions	191 816	634 111	393 736	15.7	52.0	32.3	105.4	103.1	78.0
Less developed regions	1 601 387	4 584 159	1 513 515	20.8	59.5	19.7	104.6	103.6	85.3
Least developed countries	473 464	1 039 262	161 795	28.3	62.1	9.7	102.8	101.8	90.8
Other less developed countries	1 127 923	3 544 897	1 351 720	18.7	58.8	22.4	105.3	104.2	84.7
Africa	501 674	1 119 008	182 615	27.8	62.1	10.1	102.6	102.7	91.8
Eastern Africa	183 192	383 437	47 828	29.8	62.4	7.8	102.0	102.1	94.1
Middle Africa	83 485	165 226	17 591	31.3	62.0	6.6	101.8	100.7	92.9
Northern Africa	60 739	185 610	59 698	19.8	60.6	19.5	105.0	103.1	85.7
Southern Africa	10 865	29 791	5 946	23.3	63.9	12.8	103.0	113.6	95.1
Western Africa	163 393	354 946	51 553	28.7	62.3	9.0	102.7	103.1	96.2
Asia	971 775	3 059 487	1 190 795	18.6	58.6	22.8	105.6	104.4	85.1
Eastern Asia	251 642	846 170	492 257	15.8	53.2	31.0	107.9	106.0	81.2
South-central Asia	486 970	1 518 600	458 346	19.8	61.6	18.6	104.9	104.3	89.6
South-eastern Asia	141 266	453 845	172 139	18.4	59.2	22.4	104.8	101.8	83.0
Western Asia	91 897	240 872	68 053	22.9	60.1	17.0	104.9	104.3	89.2
Europe	93 352	317 045	221 541	14.8	50.2	35.1	105.7	103.8	76.6
Eastern Europe	31 800	109 271	80 664	14.3	49.3	36.4	105.9	103.1	70.7
Northern Europe	15 928	53 496	30 648	15.9	53.5	30.6	105.3	106.5	82.3
Southern Europe	17 271	59 932	48 393	13.8	47.7	38.5	106.5	105.0	80.4
Western Europe	28 353	94 345	61 836	15.4	51.1	33.5	105.3	102.5	79.1
Latin America and the Caribbean	138 839	444 538	184 308	18.1	57.9	24.0	104.6	100.9	78.3
Caribbean	8 411	25 784	11 619	18.4	56.3	25.4	104.8	103.7	84.1
Central America	38 609	123 569	49 579	18.2	58.4	23.4	104.7	99.9	78.8
South America	91 819	295 185	123 109	18.0	57.9	24.1	104.5	101.0	77.6
Northern America	79 281	251 953	116 698	17.7	56.2	26.1	105.1	102.1	81.4
Oceania	8 282	26 239	11 294	18.1	57.3	24.7	106.0	104.1	83.6
Australia/New Zealand	4 889	16 230	8 953	16.3	54.0	29.8	105.5	102.7	82.0
Melanesia	3 036	8 937	1 994	21.7	64.0	14.3	106.7	106.6	90.1
Micronesia	175	527	161	20.3	61.0	18.7	106.2	104.9	88.9
Polynesia	181	545	186	19.9	59.7	20.4	106.1	106.6	89.9

TABLE II.3. MEDIAN AGE OF THE WORLD POPULATION BY DEVELOPMENT GROUP, MAJOR AREA AND REGION, ESTIMATES AND PROJECTIONS ACCORDING TO VARIANTS: 1950, 2000 AND 2050
(*years*)

Development group, major area or region	*1950*	*2000*	*2050*			
			High	*Medium*	*Low*	*Constant mortality*
World	23.6	26.4	32.2	36.8	42.5	36.7
More developed regions	28.6	37.3	40.5	45.2	49.9	42.4
Less developed regions	21.3	24.1	31.2	35.7	41.3	35.8
Least developed countries	19.5	18.1	24.6	27.1	30.1	28.1
Other less developed countries	21.6	25.2	33.4	38.5	44.9	38.0
Africa	19.0	18.3	24.8	27.5	30.7	28.8
Eastern Africa	18.2	17.0	23.3	25.6	28.4	26.5
Middle Africa	19.5	16.9	22.3	24.3	26.7	25.8
Northern Africa	19.3	21.6	32.1	36.7	42.2	36.3
Southern Africa	20.7	22.0	27.0	30.8	36.0	34.9
Western Africa	18.9	17.2	24.3	26.8	29.8	28.2
Asia	22.0	26.1	33.6	38.7	45.1	38.3
Eastern Asia	23.5	30.8	38.0	44.6	52.1	42.6
South-central Asia	20.7	22.4	31.8	36.4	42.0	36.6
South-eastern Asia	20.4	23.8	33.7	39.0	45.7	37.9
Western Asia	20.1	22.1	29.6	33.3	37.9	33.2
Europe	29.2	37.7	43.1	47.7	52.3	44.5
Eastern Europe	26.4	36.6	44.3	49.1	53.5	44.7
Northern Europe	33.5	37.7	39.9	44.4	49.1	41.8
Southern Europe	27.5	38.2	45.8	50.5	54.9	47.8
Western Europe	34.5	38.9	41.6	46.2	51.0	43.4
Latin America and the Caribbean	20.1	24.2	34.3	39.8	46.6	38.4
Caribbean	21.3	26.6	33.9	39.6	47.0	38.6
Central America	18.9	22.1	34.1	39.7	46.6	38.7
South America	20.4	24.9	34.5	39.8	46.5	38.2
Northern America	29.8	35.4	35.9	40.2	45.1	38.6
Oceania	27.8	30.7	35.5	39.9	44.7	38.6
Australia/New Zealand	30.2	35.1	39.6	43.7	47.8	42.1
Melanesia	19.7	19.6	29.6	33.5	38.4	32.1
Micronesia	21.1	22.2	31.2	35.8	41.6	34.4
Polynesia	16.7	21.9	32.0	36.9	43.4	35.3

TABLE II.4. TEN COUNTRIES OR AREAS WITH THE OLDEST AND TEN COUNTRIES OR AREAS WITH THE YOUNGEST POPULATIONS, ESTIMATES AND MEDIUM VARIANT: 1950, 2000 AND 2050

1950			*2000*			*2050*		
Rank	*Country or area*	*Median age (years)*	*Rank*	*Country or area*	*Median age (years)*	*Rank*	*Country or area*	*Median age (years)*
				A. Oldest population				
1	Austria	35.8	1	Japan	41.3	1	Japan	53.2
2	Channel Islands	35.7	2	Italy	40.2	2	Slovenia	53.1
3	Belgium	35.6	3	Switzerland	40.2	3	Latvia	53.0
4	Germany	35.4	4	Germany	39.9	4	Italy	52.4
5	Luxembourg	35.0	5	Sweden	39.6	5	Estonia	52.3
6	United Kingdom	34.6	6	Finland	39.4	6	Singapore	52.0
7	France	34.5	7	Bulgaria	39.1	7	Spain	51.9
8	Sweden	34.3	8	Belgium	39.1	8	Czech Republic	51.7
9	Switzerland	33.3	9	Greece	39.1	9	Armenia	51.5
10	Norway	32.7	10	Croatia	38.9	10	Greece	51.3
				B. Youngest population				
1	Saint Vincent and the Grenadines	15.4	1	Uganda	15.1	1	Niger	20.0
2	Tonga	15.5	2	Niger	15.1	2	Angola	22.0
3	Djibouti	16.5	3	Mali	15.4	3	Somalia	22.1
4	Samoa	16.6	4	Yemen	15.4	4	Yemen	22.3
5	Fiji	16.6	5	Burkina Faso	15.5	5	Uganda	22.5
6	Rwanda	16.7	6	Burundi	15.8	6	Mali	22.6
7	Botswana	16.8	7	Somalia	16.0	7	Burkina Faso	22.7
8	Vanuatu	16.8	8	Angola	16.3	8	Guinea-Bissau	23.1
9	United Republic of Tanzania	16.9	9	Dem. Rep. of the Congo	16.5	9	Liberia	23.3
10	Iraq	17.0	10	Liberia	16.6	10	Burundi	23.4
	WORLD	23.6		WORLD	26.4		WORLD	36.8

TABLE II.5. DEPENDENCY RATIOS OF THE WORLD POPULATION BY DEVELOPMENT GROUP, MAJOR AREA AND REGION, ESTIMATES AND MEDIUM VARIANT: 1950, 2000 AND 2050

Development group, major area or region	*Overall dependency-ratio* [1] *(per cent)*			*Child dependency ratio* [2] *(per cent)*			*Elderly dependency ratio* [3] *(per cent)*		
	1950	*2000*	*2050*	*1950*	*2000*	*2050*	*1950*	*2000*	*2050*
World	65	59	56	57	48	31	9	11	25
More developed regions	54	48	71	42	27	27	12	21	44
Less developed regions	71	62	54	64	53	32	7	8	22
Least developed countries	80	86	53	74	81	43	6	6	10
Other less developed countries	70	58	54	63	50	29	7	9	26
Africa	83	85	53	77	79	43	6	6	10
Eastern Africa	86	94	53	81	88	46	5	5	8
Middle Africa	82	96	55	75	90	49	7	6	7
Northern Africa	81	67	51	75	60	30	6	7	21
Southern Africa	74	63	47	68	57	34	6	6	13
Western Africa	82	92	53	77	87	44	6	6	9
Asia	68	57	55	61	48	29	7	9	26
Eastern Asia	63	46	66	56	35	26	7	11	40
South-central Asia	73	67	49	67	59	29	6	8	20
South-eastern Asia	74	59	53	68	51	28	7	7	25
Western Asia	77	68	54	70	60	35	8	7	19
Europe	52	48	75	40	26	26	13	22	49
Eastern Europe	53	45	73	43	26	25	10	19	48
Northern Europe	52	53	67	36	29	27	16	24	41
Southern Europe	54	47	85	43	23	25	12	24	60
Western Europe	50	49	74	35	26	27	15	24	48
Latin America and the Caribbean	78	60	57	71	51	28	7	9	29
Caribbean	75	58	61	68	46	30	8	11	31
Central America	86	67	56	79	59	28	8	8	28
South America	75	57	57	69	48	28	6	9	29
Northern America	55	51	62	42	33	29	13	19	33
Oceania	59	55	59	48	40	29	12	15	30
Australia/New Zealand	55	50	67	42	31	27	13	18	40
Melanesia	80	75	46	73	71	32	7	5	14
Micronesia	61	69	51	58	62	31	4	8	20
Polynesia	96	67	53	91	59	30	4	8	23

[1] Ratio of the number of persons aged 0-14 and 65 or over to that of persons 15-64.
[2] Ratio of the number of persons aged 0-14 to that of persons aged 15-64.
[3] Ratio off the number of persons aged 65 or over to that of persons aged 15-64.

III. FERTILITY

With only a few exceptions now remaining, the countries of the less developed world have witnessed substantial declines in their fertility rates over the past half-century, and, in many instances, these declines have been extraordinarily rapid by comparison with the historical experience of the West. The more-developed countries have also experienced fertility declines in this period, and many of them have seen fertility rates fall well below the generational replacement level. Demographers who have projected fertility levels have repeatedly seen fertility declines proceed faster and deeper than they and most other experts had anticipated. In both developed and less developed regions, this fertility transition has ushered in profound changes, both in the demographic features of populations and in the nature of their societies.

A. THEORIES OF FERTILITY DECLINE

The main ways by which fertility decline has been brought about may be grouped into the proximate causes and the more fundamental socioeconomic determinants that act through them. Among the proximate causes, the most important has been the use of contraception to limit births within marriage, or within sexual unions that are akin to marriage (National Research Council, 2000, pp. 56–57). Induced abortion has also played a significant role, accounting for 10–30 per cent of fertility decline, and the postponement of marriage and first birth has been another important factor, especially in driving down the "period" (that is, calendar-year-specific) measures of fertility. For the more developed regions, and also for some less developed regions, low fertility has been achieved mainly through the virtual elimination of higher-order births, whereas first and second births have been reduced much less (National Research Council, 2000, p. 6). Childlessness has not yet played a large role in explaining low fertility in the more developed regions, although it may do so in the future (Morgan, 2003).

In the less developed world, mortality decline has undoubtedly had a major influence in paving the way for lower fertility, although the causal mechanisms through which this effect operates at the family level continue to elude detection (apart from the lactation-interruption mechanism, which is well-documented; for a review, see Montgomery and Cohen, 1998). It is not yet known whether the mortality increase associated with the HIV/AIDS epidemic will have the effect of increasing fertility, or, at the least, slowing its decline, in the most affected regions such as Southern Africa (National Research Council, 2000, p. 69).

The demand for children's schooling that is evident across all regions of the less developed world can be expected to put continuing downward pressure on fertility rates. In any given generation, demands for schooling are associated with increases in the parental time (and money) costs of childrearing, and, as a rule, this causes high family-size desires to give way to desires for smaller numbers of children. The fertility-reducing effects also operate across generations—as many studies have shown, parents with more education are likely to bear fewer (but more educated) children. The opportunity costs of childrearing are magnified by the emergence of better-paying jobs for women in occupations outside the home, which are often incompatible with child care. Income growth can also reinforce the transition to smaller families, as can the diffusion of new ideas about appropriate parental responsibilities in childrearing, the importance of schooling, and the acceptability of modern means of contraception (Casterline, 2001).

Among developed countries, the main motivations for low fertility have much in common with the reasons for fertility decline in the high-fertility countries: the high time and money costs of childrearing; the tension, especially for women, between parental roles and both educational and workplace opportunities; and the realization of much of the psycho–social satisfaction associated with childrearing through experience with raising one or two children (National Research Council, 2000, pp. 98–100). Some of these factors also seem to have prompted what the National Research Council (2000) terms a "retreat from marriage" and the emergence of non-marital unions in the low-fertility countries.

In seeking to explain low fertility in the more-developed world, Morgan (2003, p. 593) notes that even while embracing parenthood, which continues to bring a sense of meaning and coherence to the lives of many men and women, fundamental changes in the social definitions of good parenting provide a justification for low fertility: "Large families are now viewed as inconsistent with good parenting. Because of this ideological change, low fertility coexists with strong and pervasive desires to be a parent."

Fertility decline also opens space in which adults can pursue satisfactions in areas lying outside the parental sphere. Lee (2003) notes that in the world of 1800, with life expectancy in the neighbourhood of 28 years and fertility spread over the 20–50 age range, women could expect to spend about 70 per cent of their adult lives in bearing and rearing young children. In today's developed world, as life spans approach 78 years, and the range of ages in which women bear and rear young children shrinks (to the 25–33 age range, in Lee's calculations), the percentage of adult life spent in these activities is only 14 per cent.

B. FERTILITY PROJECTIONS

The measure of fertility to be described here is the total fertility (TF), which demographers usually calculate on a period basis—that is, for a given calendar year or range of such years—using the age-specific rates that are in effect for the period. If the age-specific rates are taken to be constant over time, and in force for the duration of a reproductive span, then their summation over single years of age yields the average number of children a woman would bear over the course of her reproductive years, assuming that she survives to the end of those years. Hence, the TF is usually reported in terms of children per woman, and, when technical qualifiers are in order, it is termed a "synthetic cohort" measure. The idea is to distinguish the TF from a true cohort mean, that is, from the mean number of children to whom women actually give birth over a reproductive lifetime that spans multiple calendar years, during which (in general) fertility rates at given ages will vary. Also, because the TF is an average, it cannot express the range and distribution of children ever born. Other demographic measures are available to describe such distributions, but because they are not employed in the projections, we do not discuss them here.

At present, the countries of the world exhibit a great variety of total fertility. In the more developed regions, for instance, the lowest TF in evidence in 2000–2005 were for Latvia and Bulgaria, at 1.1 children per woman. The Russian Federation was next lowest, at 1.14 children, and Spain had a TF of 1.15 children. At the other end of the scale for the developed regions, we find Albania, with a TF of 2.28 children per woman, the United States of America, at 2.11, and New Zealand at 2.01 children per woman.

In the less developed world, the lowest current TF are in the Hong Kong Special Administrative Region (SAR) at 1 child per woman (the Macao SAR has a TF of 1.1), followed by Armenia at 1.15 children and then Singapore at 1.36 children per woman. Of the 148 countries and territories in the less developed regions for which fertility data are available, some 22 have below-replacement fertility. China, the world's most populous country in 2000, has a below-replacement TF of 1.83 per woman. However, India, the next most populous country, has a TF of 3.01 children. (The fertility difference between these two countries has much to do with the anticipated reversal in the total population rankings over the course of the next half-century, during which India will claim the top spot.) Niger, with a TF of 8.0, occupies the high end of the range for total fertility in the less developed regions, followed by Somalia at 7.25 and Angola at 7.2 children per woman. For the more developed regions taken as a group, the population-weighted average of total fertility is 1.55, well below the generational replacement level of 2.1 children per woman. For less developed regions, however, the population-weighted average TF is 3.00 children per woman, which is well above replacement.

Figure III.1 may throw light on the age-specific patterns of fertility that give rise to these more developed–less developed regional differences. As can be seen, for each age the least developed countries have fertility rates that lie above the rates seen in other less developed countries, to say nothing of the more developed regions. Rates for women aged 45–49 in the least developed countries are about as high as those for teenagers (age 15-19) in the more developed world. Despite what is often suggested in popular accounts, in the more developed world fertility rates at ages 40–44 and 45–49 are very low. In the least developed countries, however, it is evidently not uncommon for women to give birth in their 40s, an age range in which women tend to face elevated risks in pregnancy, labor, and delivery.

Figure III.2 summarizes the world distribution of fertility according to the share of world population found in various ranges of the total fertility. The distribution for 1995–2000 is shown in the darker bars, and the projected distribution for 2045–2050 in the lighter bars. In 2000, the countries with below-replacement fertility (TF under 2.1 children) accounted for 46 per cent of the world's population, and those with TF in the range from 2.1 to 4 children accounted for another 40 per cent, leaving about 14 per cent of world's population with TF above 4 children per woman. By the end of the projection period, under the assumptions of the medium fertility variant, the world's distribution of fertility is expected to collapse, as indicated in the lighter bars of the figure. Some 85 per cent of the world's population is then expected to inhabit countries with below-replacement fertility, and according to this forecast, no countries will then be found with total fertility in excess of 4 children per woman. By the end of the projection period, only 15 per cent of the world's population will reside in countries with above-replacement fertility, and the range of their TF will be confined to 2.1–4.0 children.

The expected convergence in total fertility is depicted in figure III.3 by level of development, and in figure III.4 by major world region. The more developed regions, with Europe especially notable among them, are expected to undergo an appreciable fertility increase. Elsewhere, according to the medium variant, the trend is expected to be downward, albeit from different levels by development level and major world region as seen in the figures. The African total fertility profile is distinctively high throughout, whereas Latin America and Asia have become nearly indistinguishable in their fertility levels, and are expected to remain so. To be sure, the similarity is in population-weighted averages taken across all countries in a region. Taken individually, the countries of each region will display a wider range of fertility levels and more diverse trends than evident in the regional averages.

The assumptions that lie behind the trajectories for the least developed countries are described in chapter VII, with specific reference to the 16 countries that, as of the year 2000, had not yet exhibited clear signs of fertility decline. As noted in that chapter, the *2002 Revision* assumes that these countries will initiate their fertility declines over the course of the projection period, although none will likely see fertility reductions that are deep enough to reach replacement levels by the end of the projection. Whether the assumption of fertility decline for these countries will prove correct is, at the time of this writing, impossible to know. However, because the 16 countries account for such a small share of world population, any continued resistance to fertility decline on their part should not greatly affect the world projections.

In this way, for the first time, future fertility levels in the less developed regions will likely fall below 2.1 children per woman at some point in the twenty-first century. By 2050, the medium variant projects that 3 out of every 4 countries in the less developed regions will be experiencing below-replacement fertility; taken as a group, the less developed regions are expected to reach replacement level fertility in 2030–2035.

C. Period and cohort fertility

The detailed calculations and projections made for the *2002 Revision* permit a comparison between fertility rates calculated for a given period (calendar years) and those characterizing a birth cohort's experience. We illustrate the difference in these perspectives by considering the case of Spain, a country whose total fertility in 2000

Figure III.1. Age-specific fertility rates by development group: 2000

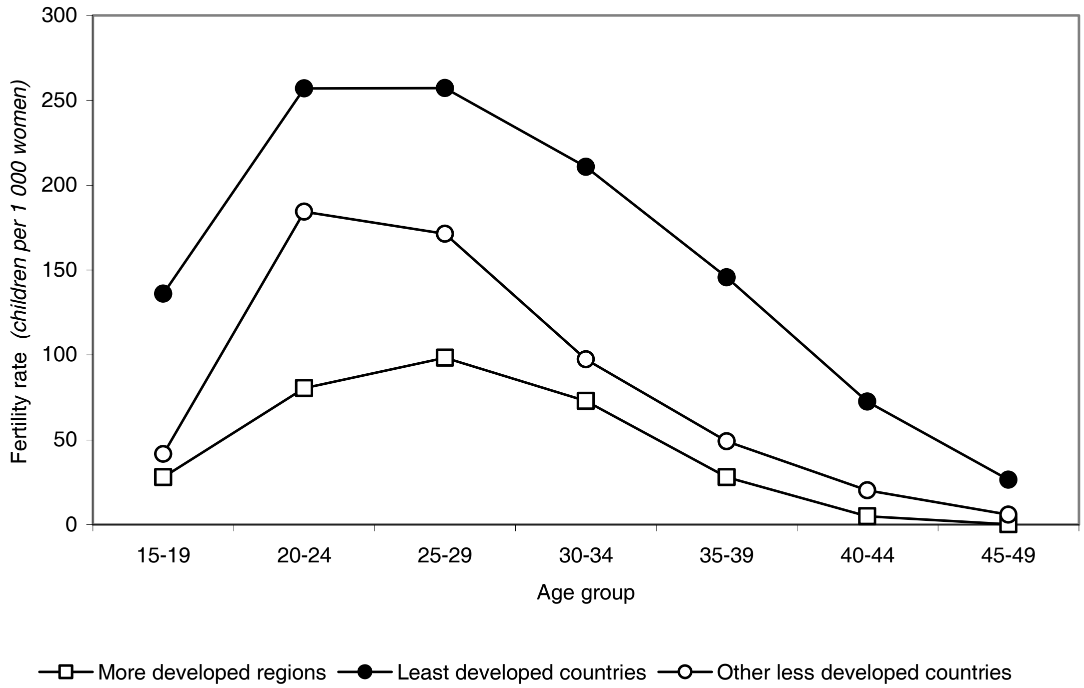


Figure III.2. Percentage of world population by level of total fertility, estimates and medium variant: 1995–2000 and 2045–2050

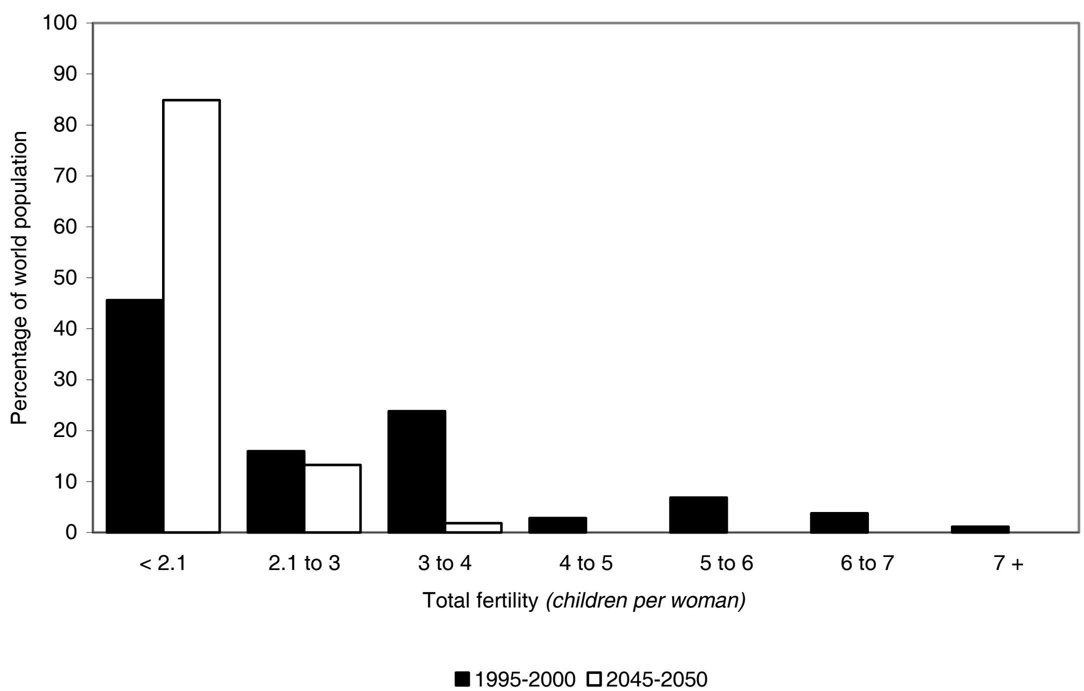


Figure III.3. Total fertility by development group, estimates and medium variant: 1950–2050

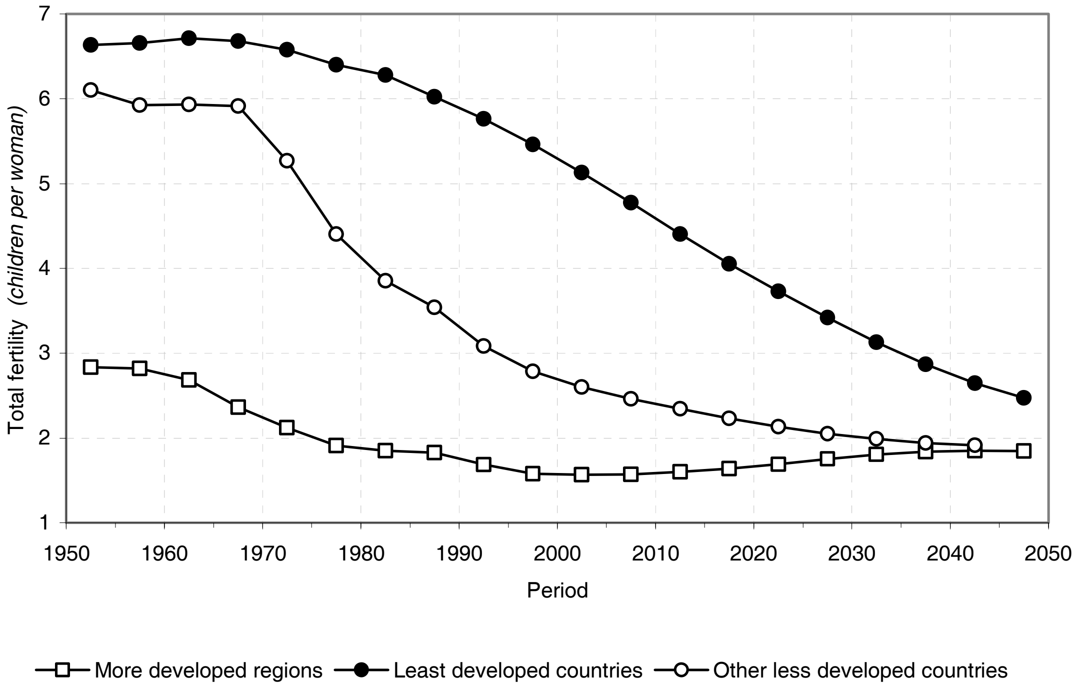
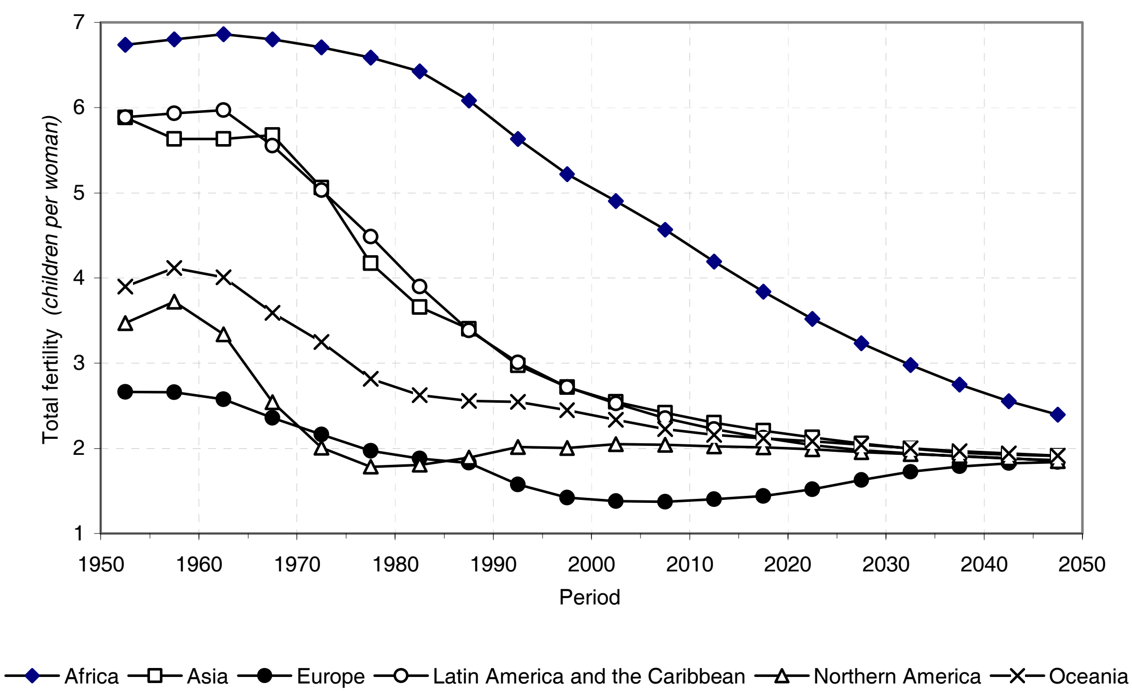


Figure III.4. Total fertility by major area, estimates and medium variant: 1950–2050



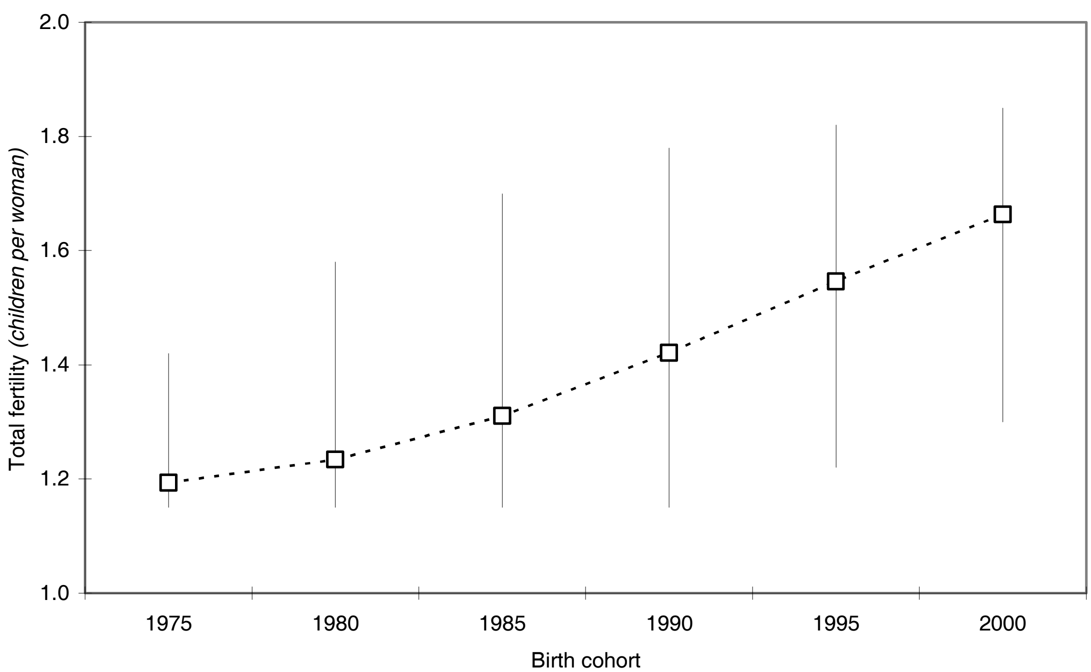
was only 1.15 children per woman, this being one of the world's lowest recorded rates.

To see how the period and cohort rates may differ, we first explore the estimated and projected experience of the Spanish birth cohort of 1980, young women who were 20 years of age in 2000. Is 1.15, the period total fertility for the year 2000, a reasonable estimate of completed cohort fertility for these Spanish women?

If the women in question adhere to the fertility rates produced by the medium variant projection, they would be expected to end their childbearing years having had not 1.15 children per woman, but rather 1.23 children per woman. The difference arises from the assumption applied in the projection, that fertility rates in countries now below replacement will rise and converge to the assumed long-run total fertility of 1.85 children. If the medium variant proves accurate, the Spanish cohort of 1980 will not itself attain the 1.85 level, but its completed fertility will exceed what might have been suggested by the year 2000 total fertility.

Figure III.5 continues the analysis for Spain, considering the range of birth cohorts for which completed cohort fertility can be projected and comparing completed fertility for these cohorts with period total fertility. (Lack of data on age-specific fertility rates prevents us from calculating the measures for earlier birth cohorts.) The projected value of completed fertility for each cohort is indicated in a box, with a dashed line connecting these predictions across cohorts. The vertical lines depict the range of period total fertility that were (or are projected to be) in effect during the cohort's reproductive span. The 1980 birth cohort, for example, will be bearing its children during an era in which period TF range from a low of 1.15 to a high of 1.58, but will end its reproductive span with a projected 1.23 children, as noted above. The birth cohort of 2000 is expected to see period TF varying from 1.30 to 1.85, but its own completed cohort fertility is projected at

Figure III.5. Projected cohort fertility and range of period total fertility, Spanish birth cohorts, medium variant: 1975–2000



1.66 children. The assumption that period TF converge to the value of 1.85 children per woman draws cohort fertility toward that same level over the course of the projection, but the convergence in cohort fertility will not generally be completed by the projection's endpoint.

Of course, many factors could intervene to affect such future developments. Among others that might be mentioned are possible further improvements in contraceptive methods, which could have the effect of reducing unintended and unwanted fertility. Also warranting attention are advances in better enabling couples to conceive (proception), as well as changes in the technologies and acceptability of sex-based and even genetic selection (National Research Council, 2000, p. 108). The determinants of voluntary and involuntary childlessness are not well understood at present, and these statuses may well increase in demographic importance over the course of the next half-century.

D. A GUIDE TO THE ANNEX TABLES

Annex tables III.1–III.13 provide additional information on fertility levels and trends. Annex tables III.1 to III.7 describe the dynamics of fertility change recorded in several sets of countries grouped by stage of fertility transition, and annex table III.8 summarizes the fertility assumptions used in preparing the medium variant projections. Annex table III.9 shows the distribution of the world's population by variant according to the level of total fertility in sets of countries over time. Annex tables III.10 to III.11 describe estimates and projections of total fertility, and annex tables III.12 and III.13 supply detailed figures for age-specific fertility rates.

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LIST OF ANNEX TABLES

TABLE III.1. STAGES OF THE TRANSITION TO LOW FERTILITY IN THE MAJOR AREAS OF THE WORLD: 2000

Major area	*No transition*	*Incipient fertility decline* [1]	*Decline to levels between 4 and 5 children per woman*	*Decline to levels between 3 and 4 children per woman*	*Decline to levels between replacement*[2] *level and 3 children per woman* [3]	*Decline to levels at or below replacement level*	*Total*
				Number of countries[4]			
Africa	13	23	8	5	4	1	54
Asia	2	9	3	10	13	13	50
Europe	—	—	—	—	1	38	39
Latin America and the Caribbean	—	—	6	5	17	7	35
Northern America	—	—	—	—	—	2	2
Oceania	—	—	6	2	2	2	12
World	15	32	23	22	37	63	192
				Population [4] *(in thousands)*			
Africa	143	365	98	105	83	1	796
Asia	20	234	29	1 332	478	1 587	3 680
Europe	—	—	—	—	3	725	728
Latin America and the Caribbean	—	—	45	45	412	18	520
Northern America	—	—	—	—	—	316	316
Oceania	—	—	6	1	0	23	31
World	163	599	178	1 483	977	2 669	6 069
				Percentage			
Africa	17.9	45.9	12.3	13.3	10.5	0.1	100.0
Asia	0.5	6.4	0.8	36.2	13.0	43.1	100.0
Europe	—	—	—	—	0.4	99.6	100.0
Latin America and the Caribbean	—	—	8.6	8.7	79.3	3.4	100.0
Northern America	—	—	—	—	—	100.0	100.0
Oceania	—	—	20.7	3.2	1.5	74.7	100.0
World	2.7	9.9	2.9	24.4	16.1	44.0	100.0

[1] Fertility declined, but is still more than five children per woman.
[2] Replacement level assumed to be 2.1 children per woman.
[3] Including Argentina and Uruguay which had experienced an early transition to low fertility but had not reached levels at or below replacement level by 1995-2000.
[4] Figures refer to the 192 countries for which information on fertility is available.

TABLE III.2. COUNTRIES WHERE THE FERTILITY TRANSITION HAD NOT BEGUN BY 2000

Major area or country	*Total fertility (children per woman)*			
	1950-1955	*1995-2000*	*Maximum level during 1950-2000*	*Reference period of maximum level*
Africa				
Niger	7.70	8.00	8.20	1980-1985
Somalia	7.25	7.25	7.25	1995-2000
Angola	6.39	7.20	7.20	1995-2000
Uganda	6.90	7.10	7.10	1995-2000
Guinea-Bissau	5.58	7.10	7.10	1995-2000
Mali	7.11	7.00	7.11	1975-1980
Burundi	6.80	6.80	6.80	1975-1980
Liberia	6.45	6.80	6.90	1990-1995
Dem. Rep. of the Congo	6.00	6.70	6.70	1995-2000
Chad	5.77	6.65	6.66	1970-1975
Sierra Leone	6.09	6.50	6.50	1995-2000
Congo	5.68	6.29	6.29	1975-1980
Equatorial Guinea	5.50	5.89	5.89	1995-2000
Asia				
Yemen	8.20	7.30	8.50	1980-1985
Bhutan	5.90	5.50	5.90	1980-1985

TABLE III.3. INDICATORS OF THE DYNAMICS OF THE FERTILITY TRANSITION IN COUNTRIES THAT HAD JUST STARTED TO EXPERIENCE A FERTILITY DECLINE BUT WHOSE TOTAL FERTILITY WAS STILL ABOVE 5 CHILDREN PER WOMAN IN 1995-2000, ORDERED BY MAJOR AREA AND TOTAL FERTILITY IN 1995-2000

	Total fertility (children per woman)								
Major area or country	*1950-1955*	*1995-2000*	*Maximum level during 1950-2000*	*Minimum level during 1950-2000*	*Reference period of maximum level*	*Reference period of minimum level*	*Number of years to pass from maximum to minimum*	*Difference between maximum and minimum*	*Decline per decade*
Africa									
Burkina Faso	6.33	6.89	7.80	6.33	1980-1985	1995-2000	15	1.47	0.98
Ethiopia	7.15	6.50	7.15	6.50	1950-1955	1995-2000	45	0.65	0.14
Malawi	6.78	6.46	7.60	6.46	1975-1980	1995-2000	20	1.14	0.57
Guinea	7.00	6.27	7.00	6.27	1980-1985	1995-2000	15	0.73	0.49
Rwanda	7.80	6.20	8.49	6.20	1975-1980	1995-2000	20	2.29	1.15
Djibouti	7.80	6.10	7.80	6.10	1960-1965	1995-2000	35	1.70	0.49
Madagascar	6.90	6.10	6.90	6.10	1955-1960	1995-2000	40	0.80	0.20
Benin	6.80	6.10	7.10	6.10	1980-1985	1995-2000	15	1.00	0.67
Zambia	6.59	6.05	7.75	6.05	1970-1975	1995-2000	25	1.70	0.68
Mauritania	6.30	6.00	6.50	6.00	1975-1980	1995-2000	20	0.50	0.25
Eritrea	6.97	5.93	6.97	5.93	1955-1960	1995-2000	40	1.04	0.26
Nigeria	6.90	5.92	6.90	5.92	1980-1985	1995-2000	15	0.98	0.65
Mozambique	6.50	5.90	6.60	5.90	1970-1975	1995-2000	25	0.70	0.28
Togo	7.10	5.80	7.10	5.80	1975-1980	1995-2000	20	1.30	0.65
United Republic of Tanzania	6.74	5.70	6.80	5.70	1955-1960	1995-2000	40	1.10	0.28
Senegal	6.70	5.40	7.00	5.40	1975-1980	1995-2000	20	1.60	0.80
Comoros	6.33	5.40	7.05	5.40	1980-1985	1995-2000	15	1.65	1.10
Côte d'Ivoire	7.00	5.30	7.41	5.30	1980-1985	1995-2000	15	2.11	1.41
Central African Republic	5.52	5.30	5.89	5.30	1975-1980	1995-2000	20	0.59	0.29
Gambia	6.09	5.20	6.50	5.20	1980-1985	1995-2000	15	1.30	0.86
Namibia	6.00	5.15	6.60	5.15	1970-1975	1995-2000	25	1.45	0.58
Swaziland	6.90	5.10	6.90	5.10	1970-1975	1995-2000	25	1.80	0.72
Cameroon	5.68	5.10	6.40	5.10	1980-1985	1995-2000	15	1.30	0.87
Asia									
Afghanistan	7.70	6.90	7.70	6.90	1955-1960	1995-2000	40	0.80	0.20
Occupied Palestinian Terr.	7.38	5.99	8.00	5.99	1965-1970	1995-2000	30	2.01	0.67
Maldives	7.00	5.80	7.00	5.80	1975-1980	1995-2000	20	1.20	0.60
Pakistan	6.28	5.48	6.28	5.48	1975-1980	1995-2000	20	0.80	0.40
Oman	7.20	5.44	7.20	5.44	1980-1985	1995-2000	15	1.76	1.17
Lao People's Dem. Republic	6.15	5.30	6.69	5.30	1980-1985	1995-2000	15	1.39	0.93
Iraq	7.18	5.25	7.18	5.25	1965-1970	1995-2000	30	1.93	0.64
Cambodia	6.29	5.25	6.60	4.70	1980-1985	1995-2000	15	1.90	1.27
Saudi Arabia	7.18	5.09	7.30	5.09	1970-1975	1995-2000	25	2.21	0.88

TABLE III.4. INDICATORS OF THE DYNAMICS OF THE FERTILITY TRANSITION IN COUNTRIES WHOSE TOTAL FERTILITY HAD DECLINED TO A LEVEL BETWEEN 4 AND 5 CHILDREN PER WOMAN IN 1995-2000, ORDERED BY MAJOR AREA AND TOTAL FERTILITY IN 1995-2000

	Total fertility (children per woman)								
Major area or country	*1950-1955*	*1995-2000*	*Maximum level during 1950-2000*	*Minimum level during 1950-2000*	*Reference period of maximum level*	*Reference period of minimum level*	*Number of years to pass from maximum to minimum*	*Difference between maximum and minimum*	*Decline per decade*
Africa									
Sudan	6.67	4.90	6.67	4.90	1970-1975	1995-2000	25	1.77	0.71
Kenya	7.51	4.60	8.12	4.60	1970-1975	1995-2000	25	3.52	1.41
Ghana	6.90	4.60	6.90	4.60	1975-1980	1995-2000	20	2.30	1.15
Zimbabwe	6.70	4.50	7.60	4.50	1970-1975	1995-2000	25	3.10	1.24
Sao Tome and Principe	5.68	4.50	5.99	4.50	1965-1970	1995-2000	30	1.49	0.50
Gabon	4.00	4.50	5.50	4.50	1985-1990	1995-2000	10	1.00	1.00
Western Sahara	6.53	4.40	6.53	4.40	1970-1975	1995-2000	25	2.13	0.85
Lesotho	5.84	4.34	5.86	4.34	1955-1960	1995-2000	40	1.52	0.38
Asia									
Nepal	5.75	4.65	6.06	4.65	1960-1965	1995-2000	35	1.41	0.40
Dem. Rep. of Timor-Leste	6.44	4.35	6.44	4.31	1950-1955	1975-1980	25	2.14	0.85
Jordan	7.38	4.11	8.00	4.11	1965-1970	1995-2000	30	3.89	1.30
Latin America and the Caribbean									
Guatemala	7.09	4.93	7.09	4.93	1950-1955	1995-2000	45	2.16	0.48
Haiti	6.30	4.38	6.30	4.38	1960-1965	1995-2000	35	1.92	0.55
Bolivia	6.75	4.32	6.75	4.32	1955-1960	1995-2000	40	2.43	0.61
Nicaragua	7.33	4.32	7.33	4.32	1960-1965	1995-2000	35	3.01	0.86
Honduras	7.50	4.30	7.50	4.30	1955-1960	1995-2000	40	3.20	0.80
Paraguay	6.50	4.17	6.55	4.17	1960-1965	1995-2000	35	2.38	0.68
Oceania									
Solomon Islands	6.40	4.99	7.23	4.99	1970-1975	1995-2000	25	2.24	0.90
Papua New Guinea	6.24	4.60	6.29	4.60	1960-1965	1995-2000	35	1.69	0.48
Vanuatu	7.60	4.59	7.60	4.59	1950-1955	1995-2000	45	3.01	0.67
Samoa	7.30	4.51	7.30	4.51	1960-1965	1995-2000	35	2.79	0.80
Micronesia (Fed. States of)	7.20	4.30	7.20	4.30	1950-1955	1995-2000	45	2.90	0.64
Tonga	7.30	4.20	7.30	4.20	1960-1965	1995-2000	35	3.10	0.89

TABLE III.5. INDICATORS OF THE DYNAMICS OF THE FERTILITY TRANSITION IN COUNTRIES THAT HAD ATTAINED FERTILITY LEVELS BETWEEN 3 AND 4 CHILDREN PER WOMAN IN 1995-2000, ORDERED BY MAJOR AREA AND TOTAL FERTILITY IN 1995-2000

	Total fertility (children per woman)								
Major area or country	*1950-1955*	*1995-2000*	*Maximum level during 1950-2000*	*Minimum level during 1950-2000*	*Reference period of maximum level*	*Reference period of minimum level*	*Number of years to pass from maximum to minimum*	*Difference between maximum and minimum*	*Decline per decade*
Africa									
Botswana	6.70	4.00	6.70	4.00	1970-1975	1995-2000	25	2.70	1.08
Cape Verde	6.60	3.80	7.00	3.80	1970-1975	1995-2000	25	3.20	1.28
Egypt	6.56	3.51	7.07	3.51	1960-1965	1995-2000	35	3.56	1.02
Libyan Arab Jamahiriya	6.87	3.43	7.59	3.43	1970-1975	1995-2000	25	4.16	1.66
Algeria	7.28	3.15	7.38	3.15	1970-1975	1995-2000	25	4.23	1.69
Asia									
Bangladesh	6.70	3.95	6.85	3.95	1960-1965	1995-2000	35	2.90	0.83
Syrian Arab Republic	7.20	3.82	7.60	3.82	1965-1970	1995-2000	30	3.78	1.26
Tajikistan	6.00	3.72	6.83	3.72	1970-1975	1995-2000	25	3.11	1.25
Qatar	6.97	3.70	6.97	3.70	1965-1970	1995-2000	30	3.27	1.09
Philippines	7.29	3.64	7.29	3.64	1950-1955	1995-2000	45	3.65	0.81
India	5.97	3.45	5.97	3.45	1950-1955	1995-2000	45	2.52	0.56
Myanmar	6.00	3.30	6.00	3.30	1965-1970	1995-2000	30	2.70	0.90
Malaysia	6.83	3.26	6.94	3.26	1955-1960	1995-2000	40	3.69	0.92
United Arab Emirates	6.97	3.17	6.97	3.17	1955-1960	1995-2000	40	3.80	0.95
Turkmenistan	6.00	3.03	6.75	3.03	1960-1965	1995-2000	35	3.72	1.06
Latin America and the Caribbean									
French Guiana	5.00	3.83	5.02	3.30	1960-1965	1975-1980	15	1.72	1.15
Belize	6.65	3.60	6.65	3.60	1950-1955	1995-2000	45	3.05	0.68
Peru	6.85	3.20	6.85	3.20	1960-1965	1995-2000	35	3.65	1.04
El Salvador	6.46	3.17	6.85	3.17	1960-1965	1995-2000	35	3.68	1.05
Ecuador	6.70	3.10	6.70	3.10	1960-1965	1995-2000	35	3.60	1.03
Oceania									
Fiji	6.63	3.20	6.79	3.20	1955-1960	1995-2000	40	3.59	0.90
Guam	5.53	3.20	6.03	3.08	1960-1965	1980-1985	20	2.95	1.48

TABLE III.6. INDICATORS OF THE DYNAMICS OF THE FERTILITY TRANSITION IN COUNTRIES THAT HAD ATTAINED FERTILITY LEVELS BELOW 3 CHILDREN PER WOMAN BUT ABOVE REPLACEMENT LEVEL IN 1995-2000, ORDERED BY MAJOR AREA AND TOTAL FERTILITY IN 1995-2000

	Total fertility (children per woman)								
Major area or country	*1950-1955*	*1995-2000*	*Maximum level during 1950-2000*	*Minimum level during 1950-2000*	*Reference period of maximum level*	*Reference period of minimum level*	*Number of years to pass from maximum to minimum*	*Difference between maximum and minimum*	*Decline per decade*
Africa									
Morocco	7.18	3.00	7.18	3.00	1955-1960	1995-2000	40	4.18	1.05
South Africa	6.50	2.90	6.50	2.90	1960-1965	1995-2000	35	3.60	1.03
Tunisia	6.93	2.32	7.25	2.32	1960-1965	1995-2000	35	4.93	1.41
Réunion	5.65	2.30	5.85	2.30	1955-1960	1995-2000	40	3.55	0.89
Asia									
Bahrain	6.97	2.98	7.18	2.98	1960-1965	1995-2000	35	4.20	1.20
Israel	4.16	2.94	4.16	2.93	1950-1955	1990-1995	40	1.23	0.31
Kuwait	7.21	2.89	7.41	2.89	1965-1970	1995-2000	30	4.52	1.51
Kyrgyzstan	4.51	2.89	5.39	2.89	1960-1965	1995-2000	35	2.50	0.71
Uzbekistan	5.97	2.88	6.80	2.88	1960-1965	1995-2000	35	3.92	1.12
Brunei Darussalam	7.00	2.70	7.00	2.70	1955-1960	1995-2000	40	4.30	1.07
Turkey	6.90	2.70	6.90	2.70	1950-1955	1995-2000	45	4.20	0.93
Mongolia	6.00	2.70	7.33	2.70	1970-1975	1995-2000	25	4.63	1.85
Indonesia	5.49	2.60	5.67	2.60	1955-1960	1995-2000	40	3.07	0.77
Iran (Islamic Republic of)	7.00	2.53	7.00	2.53	1960-1965	1995-2000	35	4.47	1.28
Viet Nam	5.75	2.50	7.25	2.50	1960-1965	1995-2000	35	4.75	1.36
Azerbaijan	5.49	2.30	5.64	2.30	1960-1965	1995-2000	35	3.34	0.95
Lebanon	5.74	2.29	6.36	2.29	1960-1965	1995-2000	35	4.07	1.16
Europe									
Albania	5.60	2.43	5.98	2.43	1955-1960	1995-2000	40	3.55	0.89
Latin America and the Caribbean [1]									
Venezuela	6.46	2.98	6.66	2.98	1960-1965	1995-2000	35	3.67	1.05
Dominican Republic	7.40	2.88	7.40	2.88	1955-1960	1995-2000	40	4.52	1.13
Colombia	6.76	2.80	6.76	2.80	1960-1965	1995-2000	35	3.96	1.13
Panama	5.68	2.79	5.92	2.79	1960-1965	1995-2000	35	3.13	0.89
Mexico	6.87	2.75	6.96	2.75	1955-1960	1995-2000	40	4.21	1.05
Suriname	6.56	2.62	6.56	2.45	1960-1965	1990-1995	30	4.11	1.37
Argentina	3.15	2.62	3.44	2.62	1975-1980	1995-2000	20	0.82	0.41
Costa Rica	6.72	2.58	7.22	2.58	1960-1965	1995-2000	35	4.64	1.33
Jamaica	4.22	2.50	5.78	2.50	1965-1970	1995-2000	30	3.28	1.09
Guyana	6.68	2.45	6.77	2.45	1955-1960	1995-2000	40	4.32	1.08

TABLE III.6 (*continued*)

Major area or country	Total fertility (children per woman) 1950-1955	1995-2000	Maximum level during 1950-2000	Minimum level during 1950-2000	Reference period of maximum level	Reference period of minimum level	Number of years to pass from maximum to minimum	Difference between maximum and minimum	Decline per decade
Chile	4.95	2.44	5.33	2.44	1955-1960	1995-2000	40	2.89	0.72
Saint Vincent and Grenadines	7.33	2.40	7.33	2.40	1955-1960	1995-2000	40	4.93	1.23
Saint Lucia	6.00	2.40	6.94	2.40	1955-1960	1995-2000	40	4.54	1.13
Bahamas	4.05	2.40	4.50	2.40	1960-1965	1995-2000	35	2.10	0.60
Uruguay	2.73	2.40	3.00	2.40	1970-1975	1995-2000	25	0.60	0.24
Brazil	6.15	2.34	6.15	2.34	1960-1965	1995-2000	35	3.81	1.09
United States Virgin Islands	4.76	2.25	4.90	2.25	1955-1960	1995-2000	40	2.65	0.66
Oceania									
French Polynesia	6.00	2.60	6.50	2.60	1960-1965	1995-2000	35	3.90	1.11
New Caledonia	5.00	2.60	5.30	2.60	1960-1965	1995-2000	35	2.70	0.77

[1] Including Argentina and Uruguay which had experienced an early transition to low fertility but had not reached levels at or below replacement level by 1995-2000.

TABLE III.7. INDICATORS OF THE DYNAMICS OF THE FERTILITY TRANSITION IN COUNTRIES THAT HAD ATTAINED FERTILITY LEVELS AT OR BELOW REPLACEMENT LEVEL BY 1995-2000, ORDERED BY MAJOR AREA AND TOTAL FERTILITY IN 1995-2000

	Total fertility (children per woman)								
Major area or country	*1950-1955*	*1995-2000*	*Maximum level during 1950-2000*	*Minimum level during 1950-2000*	*Reference period of maximum level*	*Reference period of minimum level*	*Number of years to pass from maximum to minimum*	*Difference between maximum and minimum*	*Decline per decade*
Africa									
Mauritius	6.27	2.05	6.27	2.05	1950-1955	1995-2000	45	4.22	0.94
Asia									
Sri Lanka	5.94	2.10	5.98	2.10	1955-1960	1995-2000	40	3.88	0.97
Kazakhstan	4.41	2.10	4.56	2.10	1955-1960	1995-2000	40	2.46	0.61
Dem. People's Rep. of Korea	3.35	2.05	4.62	2.05	1955-1960	1995-2000	40	2.57	0.64
Cyprus	3.71	1.96	3.71	1.96	1950-1955	1995-2000	45	1.75	0.39
Thailand	6.40	1.95	6.40	1.95	1960-1965	1995-2000	35	4.45	1.27
China	6.22	1.80	6.22	1.80	1950-1955	1995-2000	45	4.42	0.98
Georgia	3.00	1.58	3.00	1.58	1950-1955	1995-2000	45	1.42	0.32
Singapore	6.40	1.57	6.40	1.57	1950-1955	1995-2000	45	4.83	1.07
Republic of Korea	5.40	1.51	6.33	1.51	1955-1960	1995-2000	40	4.82	1.20
Armenia	4.49	1.42	4.49	1.42	1955-1960	1995-2000	40	3.07	0.77
Japan	2.75	1.39	2.75	1.39	1950-1955	1995-2000	45	1.36	0.30
China, Macao SAR	5.03	1.15	5.10	1.15	1960-1965	1995-2000	35	3.95	1.13
China, Hong Kong SAR	4.44	1.10	5.31	1.10	1960-1965	1995-2000	35	4.21	1.20
Europe									
Iceland	3.70	2.06	4.02	2.06	1955-1960	1995-2000	40	1.97	0.49
TFYR Macedonia	5.32	1.92	5.32	1.76	1950-1955	1990-1995	40	3.56	0.89
Ireland	3.38	1.90	3.98	1.90	1960-1965	1995-2000	35	2.08	0.59
Malta	4.14	1.86	4.14	1.86	1950-1955	1995-2000	45	2.27	0.50
Norway	2.60	1.85	2.90	1.69	1960-1965	1980-1985	20	1.21	0.61
Serbia and Montenegro	3.22	1.77	3.22	1.77	1950-1955	1995-2000	45	1.45	0.32
France	2.73	1.76	2.85	1.71	1960-1965	1990-1995	30	1.14	0.38
Denmark	2.54	1.75	2.59	1.43	1960-1965	1980-1985	20	1.16	0.58
Finland	2.97	1.74	2.97	1.62	1950-1955	1970-1975	20	1.36	0.68
Luxembourg	1.98	1.73	2.37	1.47	1960-1965	1980-1985	20	0.90	0.45
United Kingdom	2.18	1.70	2.81	1.70	1960-1965	1995-2000	35	1.11	0.32
Croatia	2.76	1.60	2.76	1.52	1950-1955	1990-1995	40	1.24	0.31
Netherlands	3.06	1.60	3.17	1.52	1960-1965	1980-1985	20	1.65	0.83

TABLE III.7 (*continued*)

Major area or country	*Total fertility (children per woman)* 1950-1955	1995-2000	*Maximum level during 1950-2000*	*Minimum level during 1950-2000*	*Reference period of maximum level*	*Reference period of minimum level*	*Number of years to pass from maximum to minimum*	*Difference between maximum and minimum*	*Decline per decade*
Belgium	2.33	1.60	2.66	1.56	1960-1965	1985-1990	25	1.10	0.44
Republic of Moldova	3.50	1.56	3.50	1.56	1950-1955	1995-2000	45	1.94	0.43
Sweden	2.21	1.56	2.32	1.56	1960-1965	1995-2000	35	0.77	0.22
Channel Islands	2.07	1.50	2.67	1.43	1960-1965	1980-1985	20	1.24	0.62
Poland	3.62	1.48	3.62	1.48	1950-1955	1995-2000	45	2.14	0.48
Switzerland	2.28	1.47	2.51	1.47	1960-1965	1995-2000	35	1.03	0.29
Portugal	3.04	1.46	3.07	1.46	1960-1965	1995-2000	35	1.61	0.46
Slovakia	3.52	1.40	3.52	1.40	1950-1955	1995-2000	45	2.12	0.47
Hungary	2.73	1.38	2.73	1.38	1950-1955	1995-2000	45	1.35	0.30
Lithuania	2.71	1.38	2.71	1.38	1950-1955	1995-2000	45	1.33	0.30
Austria	2.09	1.36	2.78	1.36	1960-1965	1995-2000	35	1.42	0.41
Bosnia and Herzegovina	4.82	1.35	4.82	1.35	1950-1955	1995-2000	45	3.47	0.77
Germany	2.16	1.34	2.49	1.31	1960-1965	1990-1995	30	1.18	0.39
Romania	2.87	1.32	2.96	1.32	1965-1970	1995-2000	30	1.64	0.55
Greece	2.29	1.30	2.38	1.30	1965-1970	1995-2000	30	1.08	0.36
Estonia	2.06	1.28	2.18	1.28	1985-1990	1995-2000	10	0.90	0.90
Belarus	2.61	1.27	2.73	1.27	1955-1960	1995-2000	40	1.46	0.37
Russian Federation	2.85	1.25	2.85	1.25	1950-1955	1995-2000	45	1.60	0.36
Ukraine	2.81	1.25	2.81	1.25	1950-1955	1995-2000	45	1.56	0.35
Slovenia	2.80	1.25	2.80	1.25	1950-1955	1995-2000	45	1.55	0.34
Italy	2.32	1.21	2.50	1.21	1960-1965	1995-2000	35	1.29	0.37
Spain	2.57	1.19	2.92	1.19	1965-1970	1995-2000	30	1.73	0.58
Czech Republic	2.69	1.18	2.69	1.18	1950-1955	1995-2000	45	1.51	0.34
Latvia	2.00	1.17	2.09	1.17	1985-1990	1995-2000	10	0.92	0.92
Bulgaria	2.48	1.14	2.48	1.14	1950-1955	1995-2000	45	1.34	0.30
Latin America and the Caribbean									
Netherlands Antilles	5.65	2.10	5.65	2.10	1950-1955	1995-2000	45	3.55	0.79
Guadeloupe	5.61	2.10	5.61	2.10	1960-1965	1990-1995	30	3.51	1.17
Puerto Rico	4.97	1.99	4.97	1.99	1950-1955	1995-2000	45	2.99	0.66
Martinique	5.71	1.90	5.71	1.90	1955-1960	1995-2000	40	3.81	0.95
Trinidad and Tobago	5.30	1.65	5.30	1.65	1955-1960	1995-2000	40	3.65	0.91
Cuba	4.10	1.55	4.67	1.55	1960-1965	1995-2000	35	3.12	0.89

TABLE III.7 (*continued*)

Major area or country	*Total fertility (children per woman)* 1950-1955	1995-2000	Maximum level during 1950-2000	Minimum level during 1950-2000	*Reference period of maximum level*	*Reference period of minimum level*	*Number of years to pass from maximum to minimum*	*Difference between maximum and minimum*	*Decline per decade*
Barbados	4.67	1.50	4.67	1.50	1955-1960	1995-2000	40	3.17	0.79
Northern America									
United States of America	3.45	2.05	3.71	1.79	1955-1960	1975-1980	20	1.92	0.96
Canada	3.73	1.56	3.90	1.56	1955-1960	1995-2000	40	2.33	0.58
Oceania									
New Zealand	3.69	1.97	4.07	1.96	1955-1960	1980-1985	25	2.11	0.84
Australia	3.18	1.77	3.41	1.77	1955-1960	1995-2000	40	1.63	0.41

TABLE III.8. ASSUMPTIONS MADE IN THE MEDIUM VARIANT ABOUT THE STARTING FERTILITY LEVEL AND THE TIMING OF THE ATTAINMENT OF REPLACEMENT LEVEL FOR COUNTRIES WITH FERTILITY ABOVE 5 CHILDREN PER WOMAN IN 2000-2005, ORDERED BY MAJOR AREA AND FERTILITY LEVEL

	Total fertility (children per woman)		*Reference period for the attainment of replacement level*	*Total population in 2000 (thousands)*	*Total population in 2050 (thousands)*
Major area, country or area	*2000-2005*	*2045-2050*			
Africa					
Niger	8.00	3.85	…	10 742	53 037
Somalia	7.25	3.05	…	8 720	39 669
Angola	7.20	3.00	…	12 386	43 131
Guinea-Bissau	7.10	2.86	…	1 367	4 719
Uganda	7.10	2.90	…	23 487	103 248
Mali	7.00	2.90	…	11 904	45 998
Burundi	6.80	2.74	…	6 267	19 459
Liberia	6.80	2.78	…	2 943	9 821
Dem. Rep. of the Congo	6.70	2.61	…	48 571	151 644
Burkina Faso	6.68	2.93	…	11 905	42 373
Chad	6.65	2.56	…	7 861	25 359
Sierra Leone	6.50	2.45	…	4 415	10 339
Congo	6.29	2.39	…	3 447	10 643
Ethiopia	6.14	2.55	…	65 590	170 987
Malawi	6.10	2.53	…	11 370	25 949
Equatorial Guinea	5.89	2.17	…	456	1 177
Guinea	5.82	2.33	…	8 117	19 591
Mauritania	5.79	2.44	…	2 645	7 497
Rwanda	5.74	2.17	…	7 724	16 973
Djibouti	5.70	2.38	…	666	1 395
Madagascar	5.70	2.38	…	15 970	46 292
Benin	5.66	2.16	…	6 222	15 602
Zambia	5.64	2.36	…	10 419	18 528
Mozambique	5.63	2.29	…	17 861	31 275
Eritrea	5.43	2.23	…	3 712	10 539
Nigeria	5.42	2.24	…	114 746	258 478
Togo	5.33	2.08	2045-2050	4 562	10 005
United Republic of Tanzania	5.11	2.03	2045-2050	34 837	69 112
Asia					
Yemen	7.01	3.18	…	18 017	84 385
Afghanistan	6.80	2.77	…	21 391	69 517
Occupied Palestinian Territory	5.57	2.34	…	3 191	11 114
Maldives	5.33	2.08	2045-2050	291	819
Pakistan	5.08	2.06	2045-2050	142 654	348 700
Bhutan	5.02	2.17	…	2 063	5 288

NOTE: The three dots (data are not available) indicate that replacement level fertility will not be reached by the end of the projection period (2050).

TABLE III.9. DISTRIBUTION OF WORLD POPULATION ACCORDING TO LEVEL OF TOTAL FERTILITY: 2000-2050

Period	*Total*	*Total population (percentage) in countries with:* no transition or incipient decline	decline to levels between 3 and 4 children per woman	decline to levels between 3 and 4 children per woman	decline to levels between replacement level and 3 children per woman	decline to levels at or below replacement level
2000-2005.......	100	11.1	4.0	23.1	23.1	38.7
				Medium variant		
2015-2020.......	100	4.6	2.7	9.5	30.0	53.2
2025-2030.......	100	1.6	3.9	3.4	17.7	73.4
2035-2040.......	100	0.5	1.1	5.0	16.6	76.9
2045-2050.......	100	—	—	2.4	13.5	84.1
				High variant		
2015-2020.......	100	6.1	6.9	7.5	67.9	11.6
2025-2030.......	100	3.6	3.6	11.4	72.5	8.9
2035-2040.......	100	0.4	3.2	9.1	87.3	—
2045-2050.......	100	—	0.5	8.8	90.6	—
				Low variant		
2015-2020.......	100	4.3	1.9	7.0	5.9	80.9
2025-2030.......	100	0.4	3.4	3.7	10.1	82.5
2035-2040.......	100	—	0.5	3.4	6.0	90.1
2045-2050.......	100	—	—	0.6	7.0	92.4

TABLE III.10. TOTAL FERTILITY OF THE WORLD BY DEVELOPMENT GROUP, MAJOR AREA AND REGION, ACCORDING TO VARIANTS: 1950-1955, 1970-1975, 1995-2000, 2000-2005, 2020-2025 AND 2045-2050

				Projections								
	Estimates			*High*			*Medium*			*Low*		
Development group, major area or region	*1950-1955*	*1970-1975*	*1995-2000*	*2000-2005*	*2020-2025*	*2045-2050*	*2000-2005*	*2020-2025*	*2045-2050*	*2000-2005*	*2020-2025*	*2045-2050*
World	5.02	4.48	2.83	2.90	2.79	2.50	2.69	2.33	2.02	2.48	1.87	1.54
More developed regions	2.84	2.13	1.58	1.64	2.00	2.35	1.56	1.69	1.85	1.48	1.38	1.35
Less developed regions	6.16	5.42	3.11	3.16	2.90	2.52	2.92	2.41	2.04	2.68	1.93	1.56
Least developed countries	6.64	6.58	5.46	5.36	4.22	2.95	5.13	3.73	2.47	4.88	3.24	2.00
Other less developed countries	6.10	5.27	2.79	2.83	2.62	2.39	2.60	2.13	1.90	2.36	1.65	1.40
Africa	6.74	6.71	5.22	5.14	4.02	2.88	4.91	3.52	2.40	4.66	3.03	1.92
Eastern Africa	6.97	7.04	5.98	5.84	4.40	2.97	5.61	3.91	2.48	5.36	3.41	1.99
Middle Africa	5.91	6.40	6.38	6.53	5.13	3.09	6.28	4.63	2.59	6.03	4.13	2.10
Northern Africa	6.82	6.41	3.52	3.45	2.78	2.40	3.21	2.28	1.90	2.96	1.78	1.40
Southern Africa	6.46	5.55	3.10	3.04	2.57	2.37	2.79	2.07	1.87	2.54	1.57	1.37
Western Africa	6.85	7.04	5.97	5.79	4.18	2.97	5.56	3.68	2.48	5.31	3.18	2.00
Asia	5.89	5.06	2.72	2.79	2.62	2.41	2.55	2.13	1.91	2.31	1.64	1.42
Eastern Asia	5.68	4.46	1.76	2.01	2.29	2.35	1.78	1.82	1.85	1.54	1.34	1.35
South-central Asia	6.08	5.59	3.65	3.49	2.81	2.41	3.25	2.31	1.91	3.00	1.82	1.42
South-eastern Asia	5.95	5.53	2.81	2.79	2.52	2.36	2.55	2.02	1.86	2.30	1.53	1.37
Western Asia	6.46	5.66	3.73	3.69	3.16	2.67	3.45	2.67	2.19	3.20	2.18	1.72
Europe	2.66	2.16	1.42	1.45	1.81	2.34	1.38	1.52	1.84	1.30	1.23	1.34
Eastern Europe	2.91	2.15	1.29	1.22	1.67	2.35	1.18	1.43	1.85	1.13	1.18	1.35
Northern Europe	2.32	2.08	1.67	1.71	2.01	2.35	1.61	1.70	1.85	1.52	1.39	1.35
Southern Europe	2.65	2.54	1.32	1.39	1.82	2.35	1.32	1.50	1.85	1.24	1.20	1.35
Western Europe	2.39	1.92	1.52	1.67	2.00	2.35	1.58	1.68	1.85	1.46	1.35	1.35
Latin America and the Caribbean	5.89	5.03	2.72	2.74	2.52	2.36	2.53	2.04	1.86	2.28	1.57	1.36
Caribbean	5.22	4.37	2.50	2.60	2.64	2.40	2.39	2.15	1.90	2.16	1.66	1.40
Central America	6.87	6.43	3.04	3.01	2.58	2.37	2.76	2.08	1.88	2.51	1.58	1.38
South America	5.69	4.65	2.62	2.65	2.48	2.36	2.45	2.01	1.85	2.20	1.55	1.35
Northern America	3.47	2.01	2.01	2.15	2.37	2.35	2.05	1.99	1.85	1.95	1.61	1.35
Oceania	3.90	3.25	2.45	2.45	2.46	2.42	2.34	2.08	1.92	2.23	1.71	1.41
Australia/New Zealand	3.27	2.59	1.81	1.81	2.06	2.35	1.75	1.76	1.85	1.69	1.46	1.35
Melanesia	6.29	5.80	4.38	4.16	3.10	2.50	3.91	2.60	2.01	3.66	2.10	1.51
Micronesia	6.41	5.32	3.77	3.65	2.90	2.41	3.40	2.40	1.91	3.16	1.91	1.41
Polynesia	6.89	5.47	3.45	3.37	2.84	2.45	3.16	2.34	1.95	2.92	1.85	1.45

TABLE III.11. TEN COUNTRIES OR AREAS WITH THE HIGHEST AND LOWEST TOTAL FERTILITY IN THE WORLD, ESTIMATES AND MEDIUM VARIANT: 1950-1955, 1995-2000, 2000-2005 AND 2045-2050

Rank	*Country or area*	*1950-1955*	*Rank*	*Country or area*	*1995-2000*	*Rank*	*Country or area*	*2000-2005*	*Rank*	*Country or area*	*2045-2050*
					A. Highest total fertility (children per woman)						
1	Yemen	8.20	1	Niger	8.00	1	Niger	8.00	1	Niger	3.85
2	Rwanda	7.80	2	Yemen	7.30	2	Somalia	7.25	2	Yemen	3.18
3	Djibouti	7.80	3	Somalia	7.25	3	Angola	7.20	3	Somalia	3.05
4	Niger	7.70	4	Angola	7.20	4	Uganda	7.10	4	Angola	3.00
5	Afghanistan	7.70	5	Uganda	7.10	5	Guinea-Bissau	7.10	5	Burkina Faso	2.93
6	Vanuatu	7.60	6	Guinea-Bissau	7.10	6	Yemen	7.01	6	Uganda	2.90
7	Kenya	7.51	7	Mali	7.00	7	Mali	7.00	7	Mali	2.90
8	Honduras	7.50	8	Afghanistan	6.90	8	Liberia	6.80	8	Guinea-Bissau	2.86
9	Dominican Republic	7.40	9	Burkina Faso	6.89	9	Burundi	6.80	9	Liberia	2.78
10	Jordan	7.38	10	Liberia and Burundi[1]	6.80	10	Afghanistan	6.80	10	Afghanistan	2.77
					B. Lowest total fertility (children per woman)[2]						
1	Luxembourg	1.98	1	China, Hong Kong SAR	1.10	1	China, Hong Kong SAR	1.00			
2	Latvia	2.00	2	Bulgaria	1.14	2	Bulgaria	1.10			
3	Estonia	2.06	3	China, Macao SAR	1.15	3	Latvia	1.10			
4	Channel Islands	2.07	4	Latvia	1.17	4	China, Macao SAR	1.10			
5	Austria	2.09	5	Czech Republic	1.18	5	Russian Federation	1.14			
6	Germany	2.16	6	Spain	1.19	6	Slovenia	1.14			
7	United Kingdom	2.18	7	Italy	1.21	7	Armenia	1.15			
8	Sweden	2.21	8	Russian Federation	1.25	8	Spain	1.15			
9	Switzerland	2.28	9	Slovenia	1.25	9	Ukraine	1.15			
10	Greece	2.29	10	Ukraine	1.25	10	Czech Republic	1.16			

[1] Liberia and Burundi both have a total fertility of 6.8 children per woman in 1995-2000.

[2] Listing of countries with lowest total fertility for last period of projection (2045-2050) is omitted because projection assumes all countries will eventually reach a "fertility floor" of 1.85 children per woman.

TABLE III.12. PERCENTAGE DISTRIBUTION OF AGE-SPECIFIC FERTILITY RATES FOR MAJOR AREA AND REGION, MEDIUM VARIANT: 2000-2005 AND 2045-2050

	2000-2005								*2045-2050*							
Development group, major area or region	*15 -19*	*20-24*	*25 - 29*	*30 - 34*	*35 - 39*	*40 - 44*	*45 - 49*	*35-49*	*15 -19*	*20-24*	*25 - 29*	*30 - 34*	*35 - 39*	*40 - 44*	*45 - 49*	*35-49*
World	9	32	30	17	8	3	1	12	7	32	33	19	8	2	0	10
More developed regions	9	25	31	24	10	2	0	11	4	17	33	31	13	2	0	15
Less developed regions	9	32	30	17	8	3	1	13	7	34	33	17	7	2	0	9
Least developed countries	12	24	24	19	13	6	2	21	7	30	33	19	9	2	1	12
Other less developed countries	8	34	31	16	7	3	1	11	7	35	33	17	6	2	0	8
Africa	11	24	25	19	13	6	2	22	6	29	34	19	9	2	1	11
Eastern Africa	10	23	23	19	14	7	3	24	7	30	32	19	9	3	1	12
Middle Africa	16	24	22	18	12	6	2	21	9	32	31	15	8	3	1	12
Northern Africa	6	23	29	23	13	5	1	20	4	28	37	22	8	2	0	10
Southern Africa	12	24	25	19	13	6	2	20	4	33	36	19	7	1	—	8
Western Africa	11	24	25	19	13	6	3	22	5	26	35	21	9	2	1	12
Asia	7	35	32	16	7	2	1	10	6	36	34	17	6	1	0	8
Eastern Asia	1	40	39	14	3	1	0	5	1	40	39	15	4	1	0	5
South-central Asia	8	35	29	17	8	3	1	12	8	39	30	16	6	1	0	7
South-eastern Asia	8	26	31	20	11	4	1	15	8	27	35	20	9	2	0	10
Western Asia	7	25	29	20	12	5	2	19	4	27	36	21	9	2	0	11
Europe	7	26	32	24	9	2	0	11	2	15	34	33	14	2	0	16
Eastern Europe	12	37	29	15	5	1	0	6	4	23	38	26	8	1	0	9
Northern Europe	5	19	33	28	12	2	0	14	1	10	32	37	17	2	0	20
Southern Europe	4	19	33	30	12	2	0	14	1	13	33	35	16	2	0	18
Western Europe	3	18	36	30	11	2	0	13	1	10	32	37	18	2	0	20
Latin America and the Caribbean	14	29	26	17	10	3	1	14	14	30	26	17	9	3	1	12
Caribbean	15	29	26	17	9	3	1	13	14	29	26	17	10	3	1	14
Central America	14	28	25	18	11	4	1	15	14	30	26	17	10	3	1	13
South America	15	29	26	17	9	3	1	13	14	31	27	17	9	3	0	12
Northern America	12	26	29	22	9	2	0	11	7	21	33	27	10	2	0	12
Oceania	7	22	30	25	12	3	1	16	2	17	35	30	14	2	0	16
Australia/New Zealand	5	16	31	31	14	2	0	16	1	10	32	38	18	3	0	20
Melanesia	8	26	28	19	11	6	2	19	3	28	40	20	8	1	0	9
Micronesia	8	28	29	20	11	4	1	15	4	32	36	19	7	1	—	8
Polynesia	6	25	30	22	12	5	1	17	3	24	40	23	9	2	—	10

TABLE III.13. AGE-SPECIFIC FERTILITY RATES FOR THE WORLD BY DEVELOPMENT GROUP, MAJOR AREA AND REGION, MEDIUM VARIANT: 2000-2005 AND 2045-2050

	2000-2005								*2045-2050*							
Development group, major area or region	*15 -19*	*20-24*	*25 - 29*	*30 - 34*	*35 - 39*	*40 - 44*	*45 - 49*	*Total fertility*	*15 -19*	*20-24*	*25 - 29*	*30 - 34*	*35 - 39*	*40 - 44*	*45 - 49*	*Total fertility*
World	49.7	169.7	160.3	93.9	44.5	16.1	4.2	2.69	26.4	129.4	133.6	75.4	30.6	7.0	1.1	2.02
More developed regions	27.1	76.7	97.0	76.6	30.1	5.1	0.2	1.56	13.6	63.1	123.5	114.7	47.4	7.2	0.2	1.85
Less developed regions	53.4	186.9	173.2	97.7	48.1	19.5	5.6	2.92	27.9	137.5	134.9	70.3	28.3	7.0	1.2	2.04
Least developed countries	124.3	246.5	249.3	194.7	128.4	61.5	21.8	5.13	35.1	146.3	161.6	93.7	42.3	12.1	3.3	2.47
Other less developed regions	40.2	176.5	161.4	85.0	38.6	14.6	3.8	2.60	25.1	134.2	125.8	63.0	24.3	5.7	0.7	1.90
Africa	107.3	231.0	240.6	190.9	126.2	62.5	22.7	4.91	30.4	139.9	161.0	93.2	41.0	11.5	2.5	2.40
Eastern Africa	117.1	257.4	261.0	217.8	154.4	83.1	31.2	5.61	33.9	148.4	158.5	94.7	43.4	14.0	3.4	2.48
Middle Africa	200.4	298.4	273.0	224.3	156.3	81.6	21.7	6.28	44.4	167.9	163.0	78.7	42.4	17.1	4.5	2.59
Northern Africa	36.0	147.3	186.8	146.7	83.6	34.6	7.2	3.21	13.9	106.6	140.3	81.8	30.5	6.1	0.4	1.90
Southern Africa	66.2	133.1	138.2	108.6	69.8	32.7	9.9	2.79	15.7	122.5	134.2	70.3	26.5	4.7	—	1.87
Western Africa	119.3	262.6	274.9	209.4	141.3	70.4	33.6	5.56	26.8	130.9	174.5	106.0	44.8	10.2	2.5	2.48
Asia	35.0	178.6	162.8	82.5	35.0	12.4	3.1	2.55	22.7	138.5	128.5	63.2	23.5	5.0	0.7	1.91
Eastern Asia	5.1	143.7	139.5	50.5	11.4	3.6	1.3	1.78	5.0	147.9	142.9	54.5	14.2	4.1	1.3	1.85
South-central Asia	53.9	224.9	186.0	109.2	51.8	18.6	4.7	3.25	30.7	148.1	115.5	59.9	23.5	4.5	0.5	1.91
South-eastern Asia	42.2	134.8	155.7	99.8	56.1	18.5	2.6	2.55	29.0	101.2	129.9	73.6	32.4	6.7	0.0	1.86
Western Asia	47.4	174.6	197.2	140.4	85.3	33.0	11.7	3.45	17.6	117.5	159.7	94.0	39.2	8.3	1.3	2.19
Europe	20.3	70.5	87.3	67.1	26.2	4.3	0.2	1.38	6.8	55.6	126.4	121.9	50.9	6.7	0.1	1.84
Eastern Europe	29.3	87.9	69.2	35.2	12.0	2.2	0.2	1.18	14.1	86.5	140.9	96.9	28.8	2.7	0.0	1.85
Northern Europe	17.3	62.4	105.5	91.8	38.7	6.3	0.2	1.61	2.8	38.4	117.9	137.1	64.6	9.1	0.1	1.85
Southern Europe	11.2	49.7	86.7	77.9	31.7	5.4	0.3	1.32	5.0	47.7	122.2	129.1	57.9	8.0	0.1	1.85
Western Europe	9.6	55.7	113.5	95.0	36.4	5.8	0.2	1.58	2.3	36.7	117.5	138.7	65.6	9.2	0.1	1.85
Latin America and the Caribbean	72.4	145.4	130.0	87.7	49.3	17.5	3.2	2.53	52.8	112.8	97.9	62.8	33.3	11.1	1.9	1.86
Caribbean	70.6	139.0	126.0	81.3	43.6	15.2	3.0	2.39	52.4	110.9	99.0	65.6	36.5	12.5	2.4	1.90
Central America	75.6	154.9	138.7	98.2	59.8	20.7	4.0	2.76	52.1	111.2	96.7	64.5	36.7	11.6	2.0	1.88
South America	71.3	142.1	126.7	84.1	46.2	16.6	3.0	2.45	53.1	113.6	98.3	61.7	31.6	10.7	1.8	1.85
Northern America	49.8	107.1	118.4	90.0	37.3	7.1	0.4	2.05	24.1	78.0	121.7	100.5	38.3	7.2	0.3	1.85
Oceania	32.3	101.8	140.2	119.1	56.2	15.1	2.8	2.34	6.5	66.4	134.0	116.1	52.6	8.0	0.1	1.92
Australia/New Zealand	17.5	57.6	109.9	108.7	47.5	8.0	0.3	1.75	2.3	36.3	116.8	138.9	66.2	9.4	0.1	1.85
Melanesia	63.2	200.3	217.4	150.4	87.1	46.6	16.8	3.91	12.4	111.2	161.6	79.8	30.3	5.6	0.0	2.01
Micronesia	53.3	188.4	198.3	136.8	72.4	26.0	5.5	3.40	16.3	122.5	139.0	72.7	27.1	5.2	—	1.91
Polynesia	38.7	156.9	187.6	139.1	76.9	29.1	4.4	3.16	12.3	92.2	154.0	90.5	33.8	6.4	—	1.95

IV. MORTALITY

Prehistoric levels of life expectancy at birth were probably no greater than 20–30 years. Even by the sixteenth and seventeenth centuries in Europe, life expectancy rarely exceeded 35–40 years, and death rates exhibited substantial year-to-year fluctuation. According to the National Research Council (2000, p. 118), when secular decline in mortality in the West finally took hold, it proceeded in several identifiable stages. The first stage, emerging in northwest Europe around 1700 to 1800, was marked less by decline as such than by a dampening of the fluctuations in mortality. Better means of food storage and transport, together with the beginnings of regional integration of markets, led to reductions in famine-related mortality (Lee, 2003). In the second historical stage, evident in the early nineteenth century in England and Northern European countries, mortality levels themselves began to fall. The administration of smallpox vaccine in the late eighteenth century was the first of the effective preventive measures to be deployed on a wide scale, and its beneficial effects were augmented by selective use of quarantines. As the nineteenth century drew to a close, there came, together with rising incomes and improving nutrition, a growing acceptance of the germ theory of disease. Effective public health measures began to be put in place, and these, accompanied by improved personal hygiene—itself partly due to rising incomes—led to further declines in mortality. The third stage in the sequence, marked by a wider institutional acceptance of the germ theory of disease in the early years of the twentieth century, saw an acceleration in mortality decline. Significant improvements were made in infant and child mortality and in the survival rates of young adults. Finally, a fourth stage was ushered in about 1960, characterized by further substantial improvements (in percentage terms) in mortality at the younger ages but now accompanied by improvements in mortality rates at ages 65 and above.

In reviewing progress against mortality in the less developed regions, the National Research Council (2000) identified a set of early transition countries (now all having life expectancies of 70 years and higher) which began their mortality transitions before the Second World War. A second set of delayed-transition countries can also be identified. These countries have achieved life expectancies of 55 to 70 years, but for them the major part of mortality decline did not begin until after the Second World War. In the early 1950s, the delayed-transition countries had life expectancies around 43 years, but from that point forward were able to make rapid progress, recording increases in life expectancy of 0.5 or so years per annum through the mid-1980s. The principal causes of this mortality decline included immunization campaigns, effective use of oral rehydration therapies, and improved newborn care (National Research Council, 2000, p. 125). A third group of less developed regions could be described as having had very-delayed transitions in mortality. These countries have current life expectancies below 55 years. Such low levels of life expectancy are characteristic of most of sub-Saharan Africa, as well as Afghanistan, Cambodia, East Timor, Haiti, Laos, and Nepal. In many of these countries, HIV/AIDS has been a significant factor since the mid-1980s.

As noted in chapter VI, the *2002 Revision* anticipates a more serious and prolonged impact of the HIV/AIDS epidemic in the most affected countries than had previous *Revisions*. The course of the epidemic is explicitly modelled for 53 countries, an expansion of the set of 45 considered by the previous *Revision*. A full discussion of the approach and its implications may be found in chapter VI.

In addition to HIV/AIDS, profound social and economic dislocations in some parts of the world have had important repercussions in life expectancy. The dissolution of the former Soviet Union, and the removal of health care benefits formerly provided by that state, was accompanied by a clear deterioration in life expectancy, especially for men. Although a full treatment is beyond the scope of the *2002 Revision*, in what follows the effects on life expectancy and the expected trajectory of recovery will be described.

The prospects for the more developed and "early-transition" countries less developed regions are both likely to depend on continued progress against the chronic and degenerative diseases that set the level and shape the age pattern of mortality at the older ages. For the "delayed-transition" countries less developed regions, however, there is still much room for improvement in infant and child mortality. Hence, increases in women's education, the provision of modern medical care at childbirth, expanded immunization coverage, and better nutrition will all have a role to play. The "very delayed transition" countries will benefit from these developments, and also from the provision of basic health and transport infrastructure.

As noted in chapters I and II, improvements in mortality rates for infants, children, and young adults have effects on population growth that are akin to those exerted by increases in fertility. With other things held constant, such improvements would cause the net reproduction rate (NRR) to rise, and would likewise drive up the intrinsic, long-term rate of population growth. But when mortality decline removes obstacles to fertility decline, as it seems to have done in many countries over the last half-century, the net reproduction rate (NRR) may ultimately fall as a result of mortality decline. By contrast, progress against mortality at ages beyond the reproductive years makes only a modest contribution to rates of population growth, but can exert substantial influence on population age structures.

A. ESTIMATED AND PROJECTED LIFE EXPECTANCY

In 2000, life expectancy levels among the more developed regions ranged from highs of 81.6 years in Japan (both sexes combined), 80.1 years in Sweden, and 79.8 years in Iceland, to lows of 66.8 years in the Russian Federation, 68.9 years in the Republic of Moldova, and 69.7 years in the Ukraine. Among less developed regions and territories, the range was from 80 years in the Hong Kong SAR, 79.2 years in Israel, and 79.1 in Martinique, to lows of 32.4 years in Zambia, 33.1 years in Zimbabwe, and 34.2 years in Sierra Leone. Mortality in these low life expectancy countries has clearly been affected by civil strife and the HIV/AIDS epidemic, among other factors. Life expectancy in China (apart from the Hong Kong and Macao SARs), was 71 years in 2000, and for the world's next-most populous country, India, it was 63.9 years.

The progress that has been recorded against mortality over the past half-century, and expected future progress in the next half-century, are summarized in figure IV.1. The figure shows the percentages of world population living at different levels of life expectancy, with the lowest category being under 50 years and the highest being 70 years and above. In 1950, as indicated in the left-most bar, some 60 per cent of the world's population faced health and other risks that limited average life spans to 50 years or less. At that time, very few people world-wide enjoyed life expectancies above 70 years. By 2050, however, the situation is expected to have reversed: if the medium variant projection proves accurate, life expectancies under 50 years will have become vanishingly rare and some 83 per cent of the world's population will have achieved life expectancies of at least 70 years. These are projections at the country level, of course, and it may be that within some and perhaps most countries, there will be sub-populations with much lower levels of life expectancy than the country average would suggest.

Important differences in life expectancy exist among more developed, least developed, and other less developed countries, as documented in figure IV.2. In 1995–2000, the more developed regions had life expectancies of some 75 years, other less developed countries averaged 66 years, and the least developed countries only 50 years. Although a good deal of convergence is anticipated, these differences are not thought likely to vanish over the next half-century. By the end of the projection period, the expected life expectancies for these groups of countries are 82 years, 75 years, and 67 years, respectively. The major regions are expected to progress more or less in parallel with each other over the coming years, with the notable exception of Africa, where the drop in life expectancy seen in the past decade is expected to bottom out and then be followed by a measure of recovery that will still leave this region far below the world norm even by 2050 (figure IV.3).

Figure IV.1. Share of world population by level of life expectancy at birth, estimates and medium variant: 1950–1955, 1995–2000 and 2045–2050

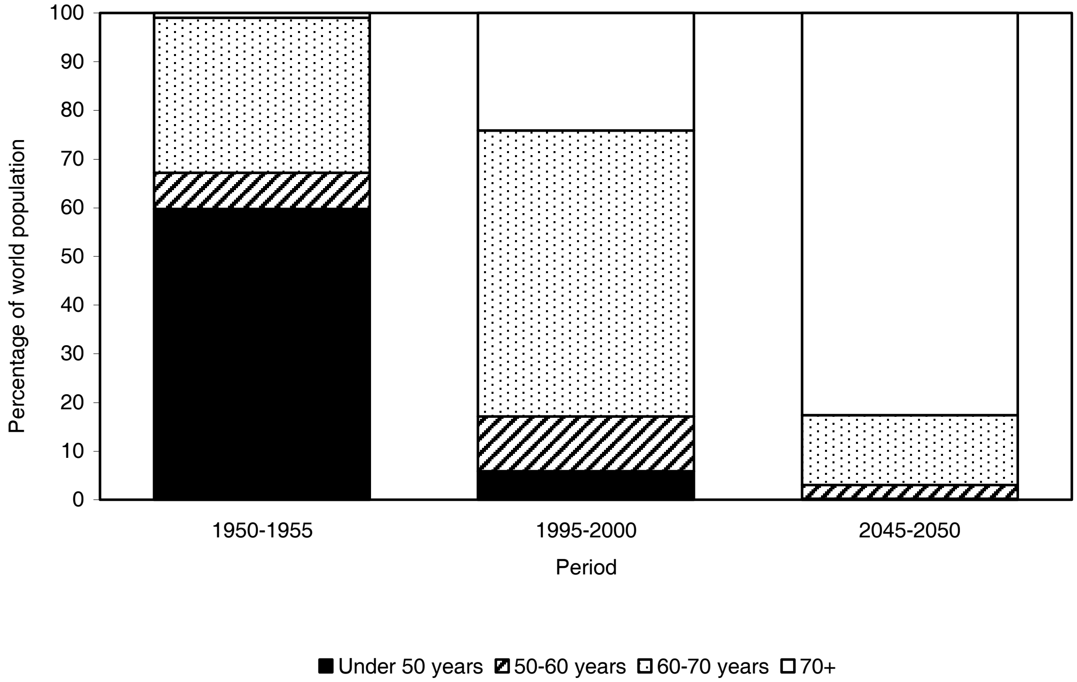


Figure IV.2. Life expectancy at birth, by development group, estimates and medium variant: 1950–2050

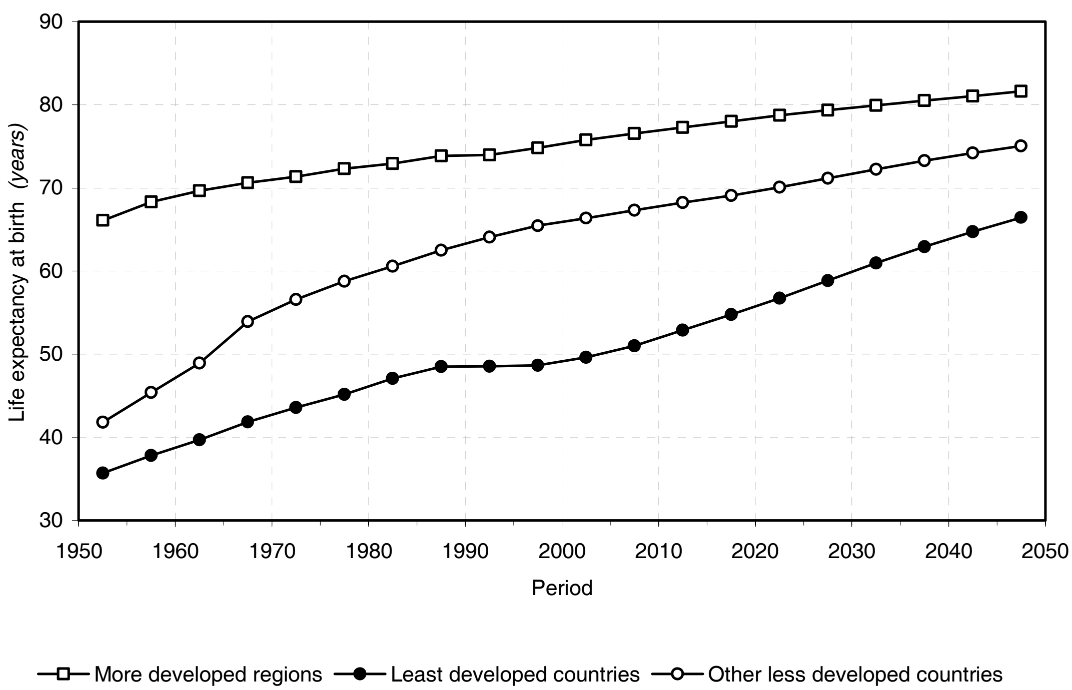


Figure IV.3. Life expectancy at birth, by major area, estimates and medium variant: 1950–2050

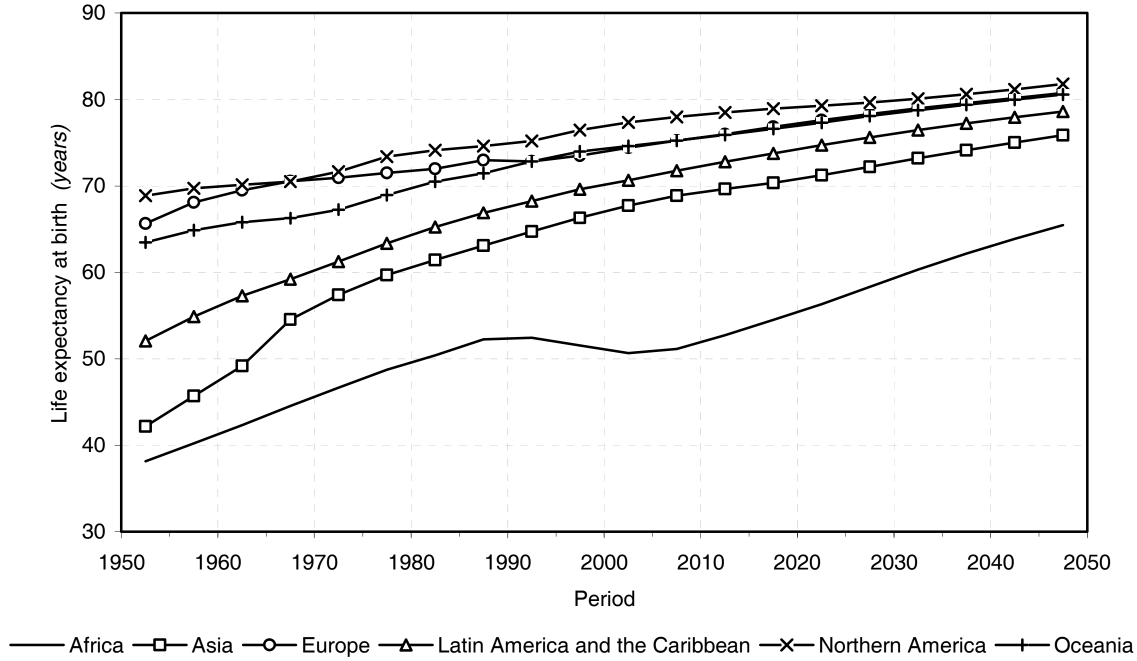


Figure IV.4 draws attention to the Southern Africa subregion and the Russian Federation, where in recent years life expectancies have stagnated or even declined. Southern Africa is among the areas most affected by HIV/AIDS, and the Population Division is projecting a sharp drop in life expectancy to 40 years by 2010–15, followed by life expectancy gains as the epidemic recedes. According to the medium projection, however, this subregion will not reach a life expectancy of 60 years even by mid-century, thus leaving life expectancy below the level that was achieved in the early 1990s. (Africa as a whole is expected to reach 65 years, and sub-Saharan Africa 63 years by 2050.) The Russian Federation now has the lowest life expectancy among all of the more developed regions. As the figure shows, life expectancy levels in the Russian Federation have been constant or declining since the early 1970s, and they are not expected to regain the levels reached then until 2025–2030.

B. Differences in life expectancy by sex

Striking female–male differences in life expectancy are evident in both more developed and less developed regions, and these differences are expected to persist for the foreseeable future. Figure IV.5 illustrates the estimated and projected gaps. In 1995–2000, the female–male gap was on the order of 7.4 years in the more developed regions, 3.6 years in other less developed countries, and 2.3 years in the least developed countries. In the more developed regions, some erosion of the female advantage is expected over the course of the projection period, but even by 2045–2050 the life expectancy gap will be 5.9 years. Little change in the female–male gap is anticipated for the least developed countries, but some increase in the gap is evidently in store for other less developed countries, according to the medium variant. Diverse trends in the female–male difference are expected for the world's major regions, with modest in-

Figure IV.4. Life expectancy at birth, Southern Africa and Russian Federation, estimates and medium variant: 1950–2050

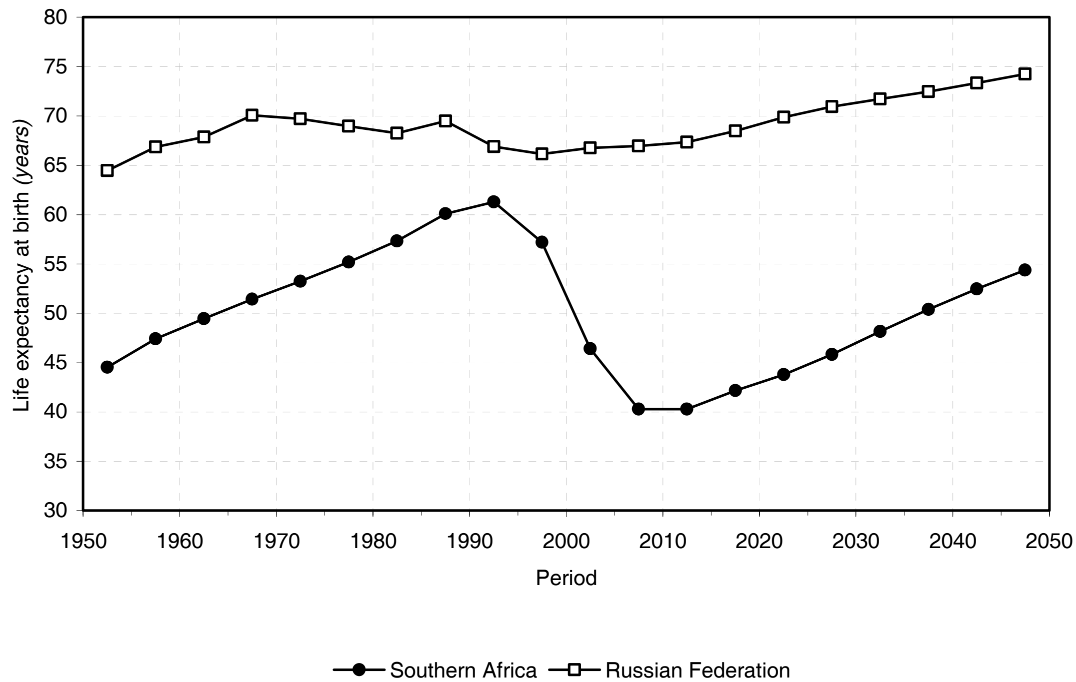
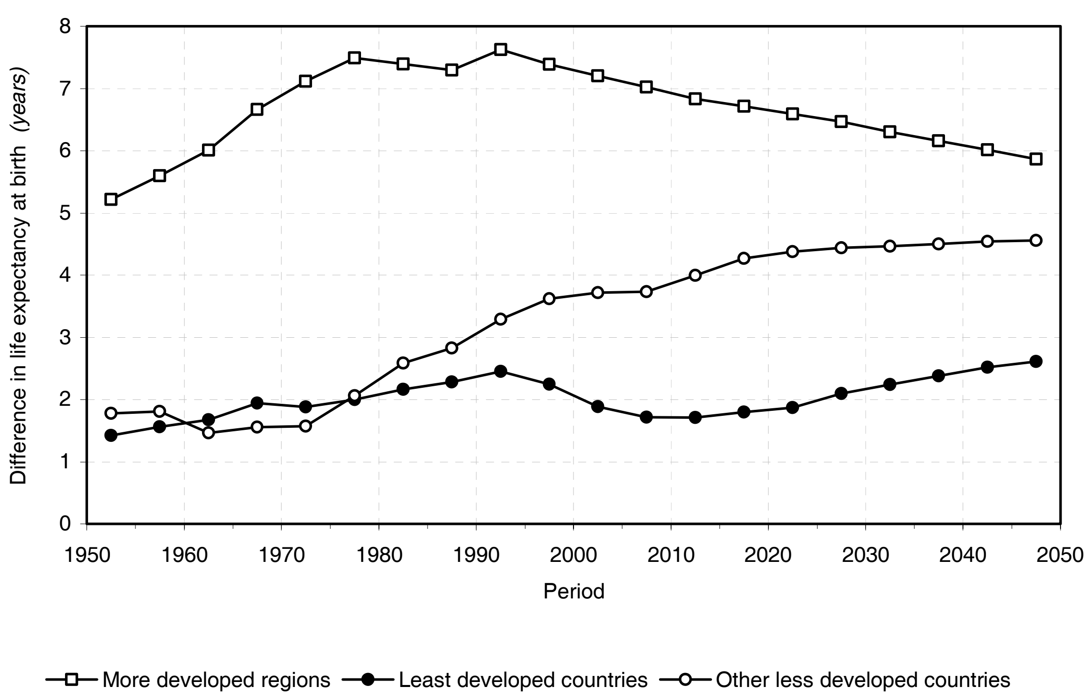


Figure IV.5. Difference between female and male life expectancy by development group, estimates and medium variant: 1990-2050



creases expected for Asia. Declines in the female advantage are expected during the upcoming decade in Africa (figure IV.6).

C. MORTALITY AT YOUNG AGES

Since the early nineteenth century, most of the progress humankind has registered in life expectancy has been the result of declines in the mortality risks facing infants, children, and, to a lesser extent, young adults. To be sure, progress has also been recorded against old-age mortality risks, but until recently (historically speaking) so few people survived to these ages that the effects on life expectancy at birth were negligible. By contrast, declines in infant and child mortality risks made a substantial difference to life expectancy at birth.

Figure IV.7 documents the progress made in reducing infant mortality over the past 50 years, and indicates that yet further reductions may lie in store for the next 50 years. At present, wide gaps separate the infant mortality rates of the more developed, least developed, and other less developed countries. In the more developed regions, about 8.2 of every 1000 newborns fail to survive the first year, whereas in the least developed countries, the figure is about 107.6 per thousand. (Infant mortality is 55.7 per thousand in the other less developed countries.) By mid-century, according to the medium variant forecast, infant mortality rates will have fallen to 4.5 per thousand in the more developed regions, 18.2 per thousand in the other less developed countries, and 35.4 per thousand in the least developed countries. The projections show the familiar patterns, with appreciable progress anticipated for Latin America and Asia, and large reductions expected even for Africa, despite the ravages of the HIV/AIDS epidemic (figure IV.8).

Much the same general pattern is expected to characterize child mortality, with the risks summarized here in terms of the likelihood of death before age five (conventionally denoted by ${}_5q_0$). In 1995–2000, some 175.6 of every 1000 newborns in the least developed countries died before reaching the fifth birthday, and 75.4 of every 1000 did so in the other less developed countries. (For more developed regions, ${}_5q_0$ was 10.2 per thousand in 1995–2000.) Considerable progress is expected in the less developed regions during the next 50 years, during which child mortality will decline to 51 per thousand in the least developed countries and 22.7 per thousand in the other less developed countries (figures IV.9 and IV.10).

To reach such levels of child mortality would be a significant achievement for the least developed countries, because after infancy the protections conferred by maternal breastfeeding are largely withdrawn and children are then exposed to a great variety of environmental and other health risks. Progress against such risks will likely depend on improvements in women's education, which many studies have shown to be associated with better survival prospects for children, an extension of public health systems to cover the poor and others at risk, and continued national and international commitments to broad-based programs of vaccination. As United Nations (2002a) emphasizes, these challenges to health will increasingly be set in the urban areas of less developed regions. So many social, economic, and political factors are involved in determining levels of infant and child mortality that forecasts of continued progress might well be thought naive. Still, the recent empirical record, on which these projections are based, provides the basis for a measure of optimism.

D. MORTALITY AMONG THE ELDERLY

Among the countries that have achieved relatively low mortality, further increases in life expectancy will depend on progress against the mortality risks of old age. There is considerable controversy about what can reasonably be forecast. According to Lee (2003, p. 171), a simple extrapolation of trends in age-specific death rates would imply that, for today's developed countries, life expectancies at birth will reach 90 years by the year 2100. However, other expert projections cited by Lee (e.g., those of the United States of America's Social Security Administration) project life expectancies of only 83 years by 2080. It has been argued by some scholars that biological limits to the human life span will prevent increases much greater than this. It may be that the academic literature is now shifting away from the position that life spans are subject to fixed limits, but clearly much remains to be learned.

Figure IV.6. Difference between female and male life expectancy by major area, estimates and medium variant: 1990-2050

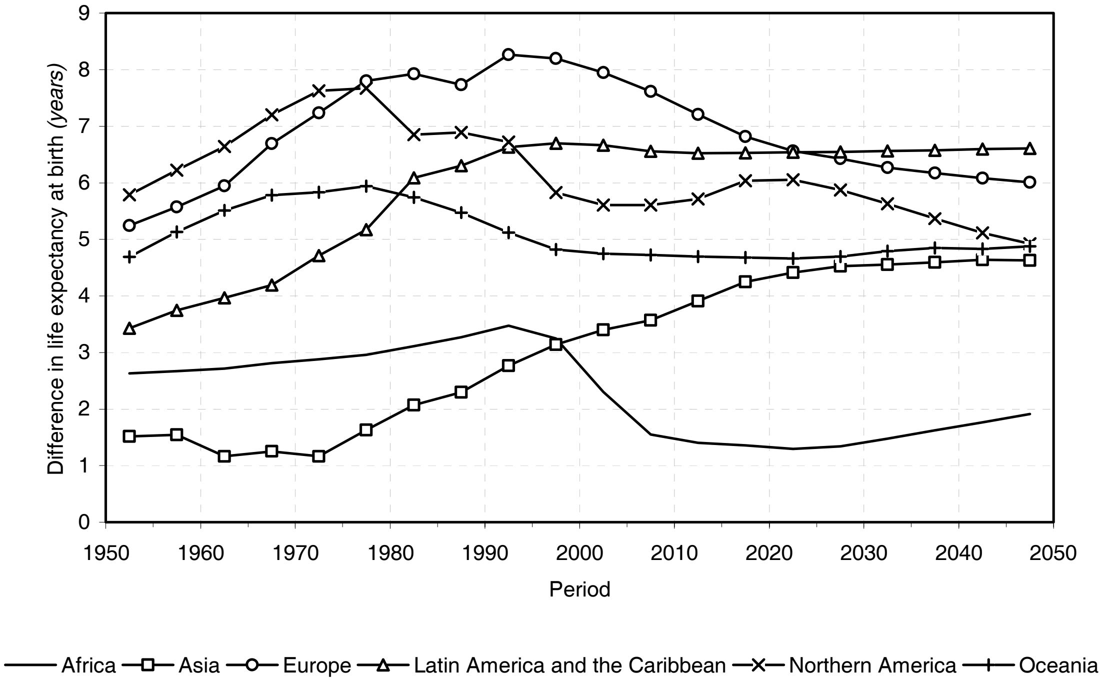


Figure IV.7. Infant mortality rates by development group, estimates and medium variant: 1950–2050

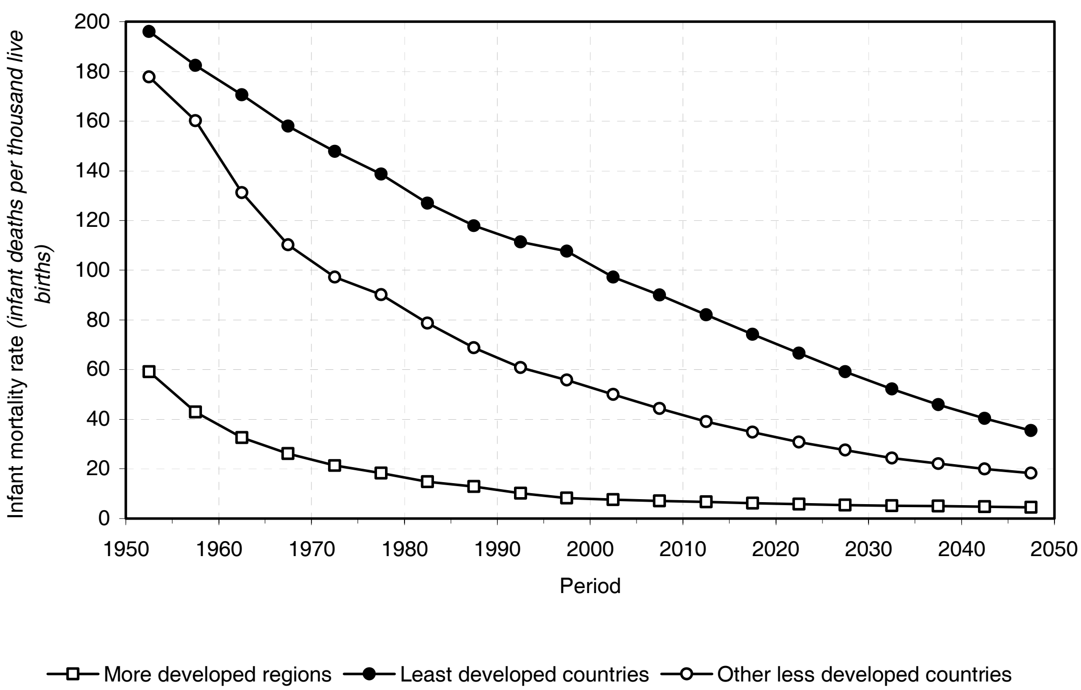


Figure IV.8. Infant mortality rates by major area, estimates and medium variant: 1950–2050

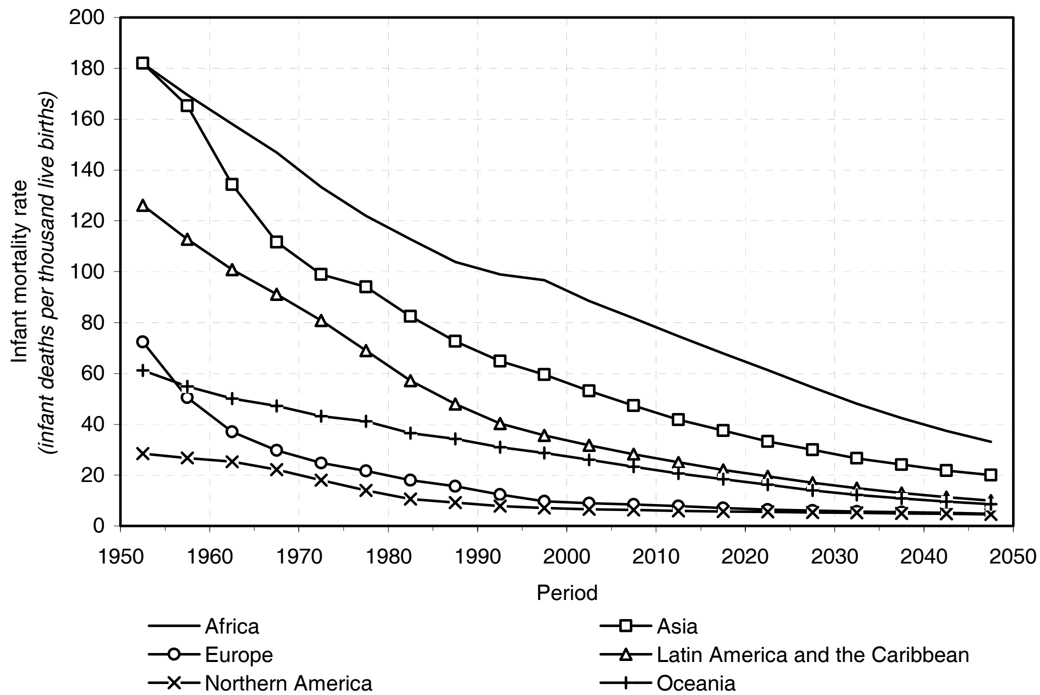


Figure IV.9. Child mortality ($_5q_0$) by development group, estimates and medium variant: 1990–2050

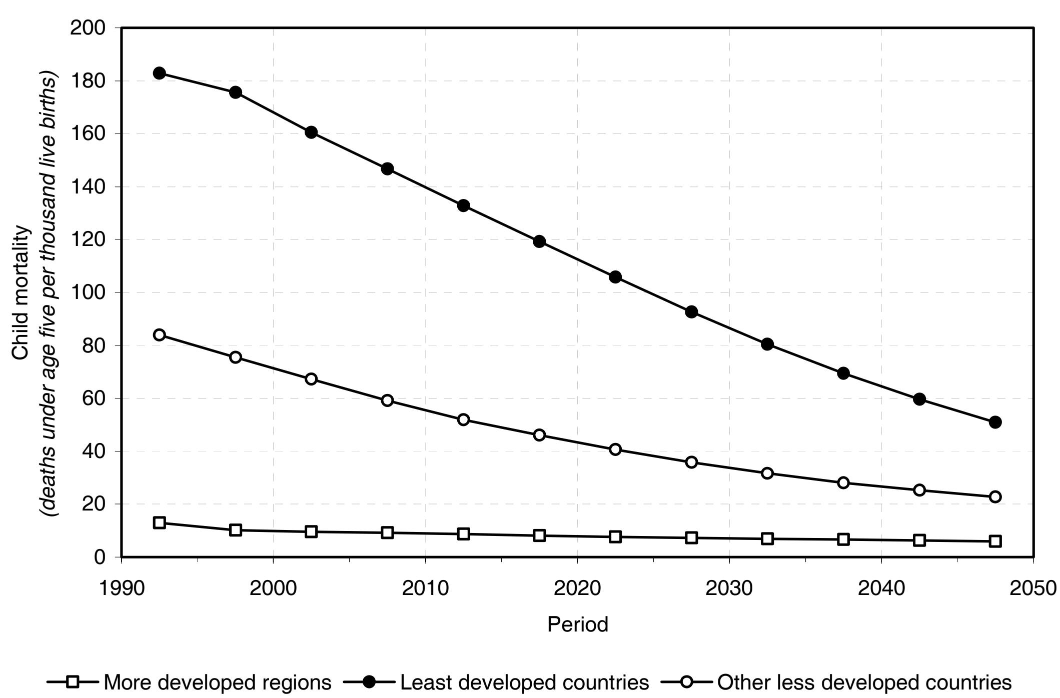


Figure IV.10. Child mortality ($_5q_0$) by major area, estimates and medium variant: 1990–2050

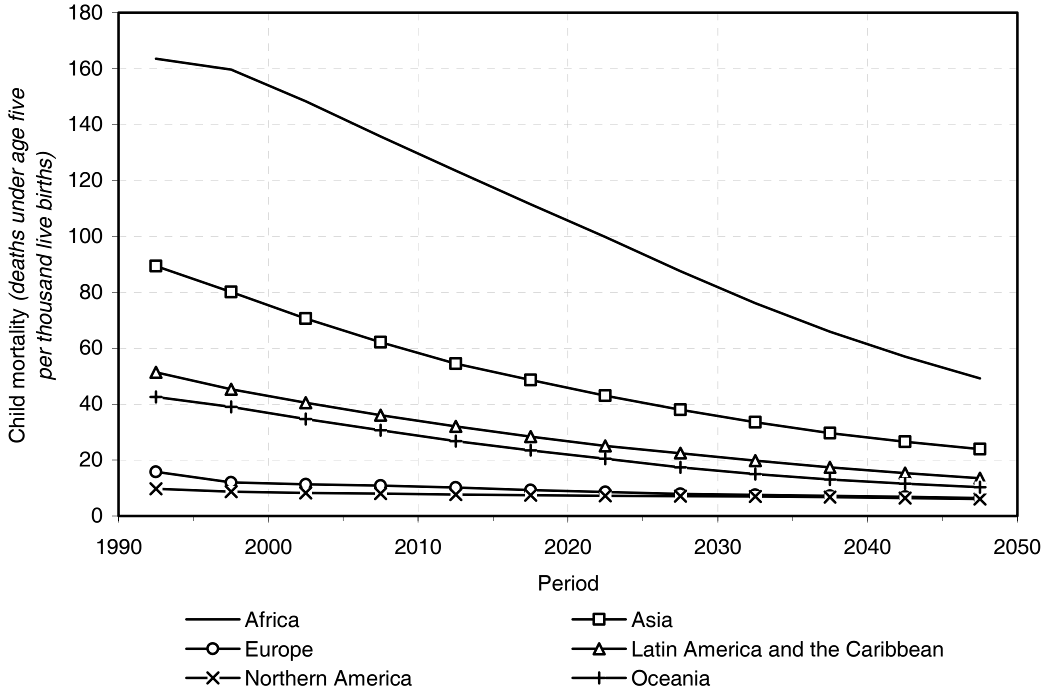


Figure IV.11 depicts the improvements estimated and projected from 1990 to 2050 in the likelihood of survival to age 65. As can be seen, steady progress is anticipated for the more developed and other less developed countries over the projection period, and more rapid progress is forecast for the least developed countries. In the more developed regions, some 90 per cent of newborns would survive to age 65 given the mortality schedules in effect at the end of the projection period, but among residents of the least developed countries, only about 65 per cent would reach that age. As with the other measures of mortality that have been described, progress is anticipated across the board, but so are persistent differences by level of development.

Given survival to age 65, figure IV.12 depicts the conditional probability of survival to age 85 in these regions. (Demographers denote this probability by l_{85}/l_{65}.) Again the levels differ greatly by level of development, but within each development category, steady progress is anticipated. For the more developed regions, the conditional survival probability rises from 35 to 55 per cent over the projection, while that for the least developed countries rises from 13 to 28 per cent, more than doubling in the course of the projection. For the other less developed countries, the expected increase in l_{85}/l_{65} is about double, from 20 to 41 per cent. Although these projections are solidly-grounded in the empirical record, it remains to be seen whether the least developed countries will indeed register the steady advances in standards of living and health care that would be required to generate such projected gains in old-age survivorship.

E. A GUIDE TO THE ANNEX TABLES

Annex tables IV.1 to IV.12 supply additional information on main demographic mortality indicators. Annex tables IV.1 through IV.7 show past estimates and future trends in life expectancy past trends and projections and life expectancy, infant mortality, and child mortality, with particular at-

Figure IV.11. Probabilities of surviving to age 65, by development group, estimates and medium variant: 1990–2050

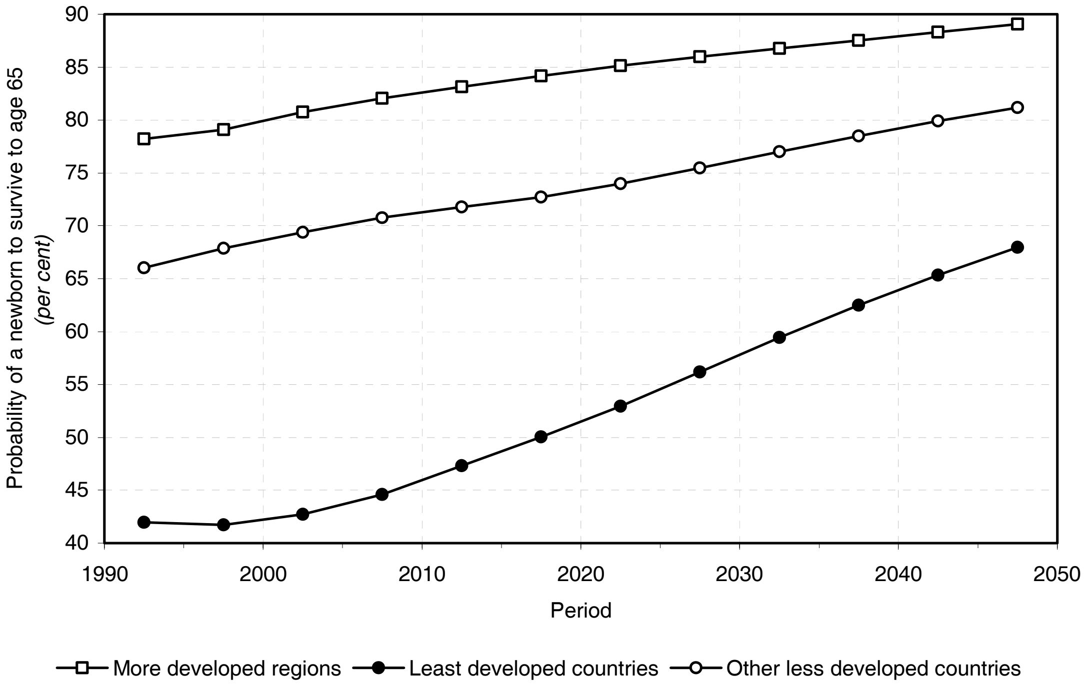
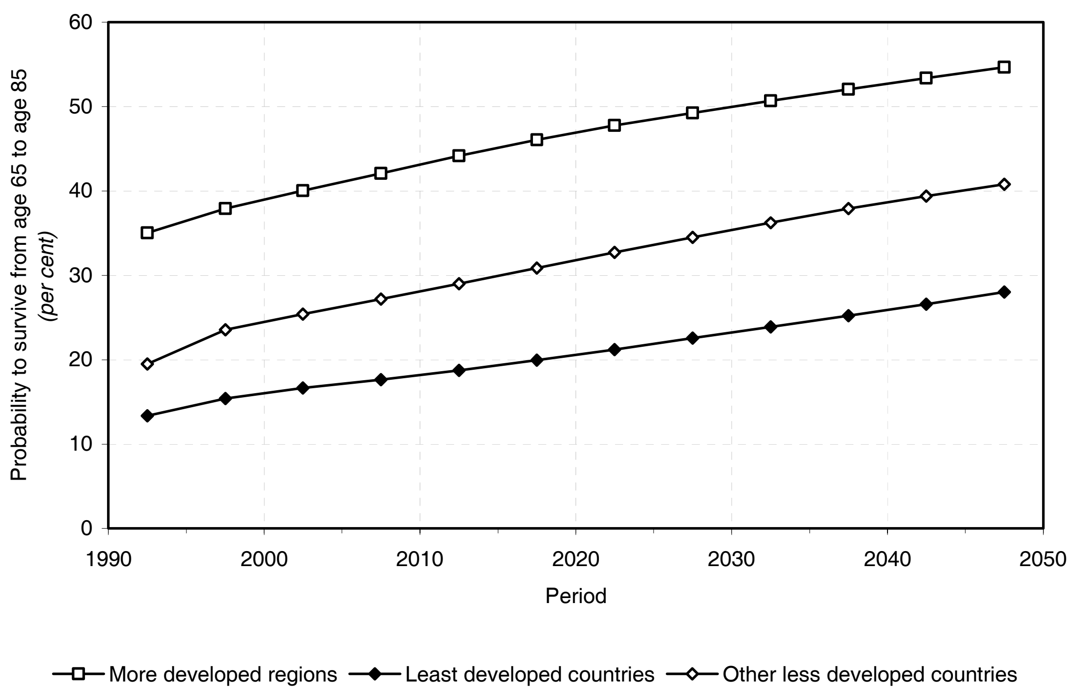


Figure IV.12. Probabilities of surviving from age 65 to age 85, by development group, estimates and medium variant: 1990–2050



tention to differences by major world region. Annex tables IV.8 to IV.12 provide more information about infant and child mortality developments, past and projected.

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LIST OF ANNEX TABLES

TABLE IV.1. TRENDS OF LIFE EXPECTANCY AT BIRTH BY SEX FOR THE WORLD, DEVELOPMENT GROUP, MAJOR AREA AND REGION: 1950-1955 AND 1995-2000

Development group, major area or region	*Both sexes (years)*		*Male (years)*		*Female (years)*		*Change (per cent) 1995-2000 to 1950-1955*	
	1950-1955	*1995-2000*	*1950-1955*	*1995-2000*	*1950-1955*	*1995-2000*	*Male*	*Female*
World	46.5	64.6	45.2	62.5	47.9	66.9	138	140
More developed regions	66.1	74.8	63.5	71.1	68.5	78.5	112	115
Less developed regions	41.0	62.5	40.2	60.9	41.9	64.3	151	153
Least developed countries	35.7	48.7	35.0	47.6	36.4	49.8	136	137
Other less developed countries	41.8	65.4	41.0	63.7	42.7	67.3	155	158
Africa	37.8	50.0	36.5	48.5	39.1	51.6	133	132
Eastern Africa	36.3	44.6	34.9	43.1	37.7	46.1	124	122
Middle Africa	36.1	41.4	34.5	40.0	37.8	42.8	116	113
Northern Africa	41.9	64.8	40.7	63.1	43.0	66.6	155	155
Southern Africa	44.5	57.2	43.4	52.9	45.6	61.9	122	136
Western Africa	35.5	50.1	34.2	49.0	36.9	51.1	143	139
Asia	41.4	65.7	40.7	64.1	42.1	67.3	158	160
Eastern Asia	42.9	70.9	41.4	68.6	44.7	73.3	166	164
South-central Asia	39.4	61.4	40.0	60.9	38.9	61.9	152	159
South-eastern Asia	41.0	65.1	39.9	62.8	42.1	67.5	157	160
Western Asia	45.2	67.7	43.6	65.7	46.8	69.9	150	149
Europe	65.6	73.2	62.9	69.1	67.9	77.4	110	114
Eastern Europe	64.2	68.3	60.6	63.0	67.0	73.8	104	110
Northern Europe	69.2	76.7	66.8	73.9	71.5	79.6	111	111
Southern Europe	63.3	77.0	61.5	73.8	65.2	80.3	120	123
Western Europe	67.6	77.7	65.1	74.4	69.9	80.9	114	116
Latin America and the Caribbean	51.4	69.4	49.7	66.0	53.1	72.9	133	137
Caribbean	52.1	66.4	50.8	64.3	53.5	68.6	127	128
Central America	49.2	71.4	47.7	68.5	50.8	74.4	144	147
South America	52.0	69.0	50.3	65.3	53.8	72.9	130	135
Northern America	68.8	76.4	66.1	73.5	71.9	79.3	111	110
Oceania	60.3	73.2	58.0	70.8	62.9	75.8	122	121
Australia/New Zealand	69.6	78.5	67.0	75.7	72.3	81.3	113	112
Melanesia	37.5	58.3	36.5	57.4	38.6	59.8	157	155
Micronesia	53.3	70.6	51.8	68.9	55.3	72.5	133	131
Polynesia	48.6	69.5	46.7	67.4	50.9	71.9	144	141

TABLE IV.2. TRENDS OF LIFE EXPECTANCY AT BIRTH BY SEX FOR COUNTRIES IN EUROPE AND NORTHERN AMERICA (EXCLUDING THOSE HIGHLY AFFECTED BY THE HIV/AIDS EPIDEMIC): 1950-1955 AND 1995-2000

	Both sexes (years)		*Male (years)*		*Female (years)*		*Change (per cent) 1995-2000 to 1950-1955*	
Major area or country or area	*1950-1955*	*1995-2000*	*1950-1955*	*1995-2000*	*1950-1955*	*1995-2000*	*Male*	*Female*
Europe								
Norway	72.7	78.1	70.9	75.2	74.5	81.1	106	109
Netherlands	72.1	77.9	70.9	75.1	73.4	80.5	106	110
Iceland	72.0	79.3	70.0	77.1	74.1	81.4	110	110
Sweden	71.8	79.3	70.4	76.8	73.3	81.8	109	112
Denmark	71.0	75.9	69.6	73.4	72.4	78.3	105	108
Channel Islands	70.6	77.6	67.4	75.2	73.7	79.9	112	108
Switzerland	69.2	78.6	67.0	75.4	71.6	81.8	113	114
United Kingdom	69.2	77.2	66.7	74.7	71.8	79.7	112	111
Belgium	67.5	77.9	65.0	74.7	70.2	81.1	115	116
Germany	67.5	77.4	65.3	74.2	69.6	80.4	114	115
Czech Republic	67.4	74.3	64.5	70.8	70.3	77.7	110	110
Ireland	66.9	76.1	65.7	73.5	68.2	78.8	112	116
France	66.5	78.1	63.7	74.2	69.5	82.0	117	118
Finland	66.3	77.2	63.2	73.4	69.6	80.7	116	116
Ukraine	66.0	68.1	61.3	62.7	69.7	73.7	102	106
Latvia	66.0	69.3	62.5	63.6	69.0	75.0	102	109
Italy	66.0	78.2	64.3	75.0	67.8	81.4	117	120
Malta	65.9	77.3	64.2	74.9	67.7	79.7	117	118
Luxembourg	65.9	77.4	63.1	74.1	68.9	80.6	117	117
Belarus	65.9	68.5	61.1	62.9	70.0	74.3	103	106
Greece	65.9	77.8	64.3	75.2	67.5	80.4	117	119
Austria	65.7	77.7	63.2	74.4	68.4	80.7	118	118
Slovenia	65.6	75.2	63.0	71.4	68.1	78.8	113	116
Estonia	65.3	70.1	61.7	64.5	68.3	75.8	104	111
Lithuania	64.8	71.4	61.5	66.0	67.8	76.6	107	113
Slovakia	64.3	72.2	62.4	68.1	66.2	76.4	109	115
Bulgaria	64.1	70.9	62.2	67.4	66.1	74.6	108	113
Spain	63.9	78.4	61.6	74.9	66.3	82.0	122	124
Hungary	63.6	70.6	61.5	66.2	65.8	75.0	108	114
Poland	61.3	72.8	58.6	68.6	64.2	77.2	117	120
Croatia	61.2	73.3	59.0	69.3	63.2	77.3	117	122
Romania	61.1	70.5	59.4	67.0	62.8	74.2	113	118
Portugal	59.3	75.2	56.9	71.6	61.9	78.8	126	127
Republic of Moldova	58.4	67.3	55.0	63.5	63.0	71.0	116	113
Serbia and Montenegro	58.0	72.2	57.1	69.9	58.8	74.6	122	127
Albania	55.2	72.8	54.4	69.9	56.1	75.9	128	135
TFYR Macedonia	55.0	72.7	55.0	70.6	55.0	74.8	128	136
Bosnia and Herzegovina	53.8	73.3	52.6	70.5	54.8	75.9	134	139
Northern America								
Canada	69.1	78.7	66.8	75.9	71.6	81.4	114	114

NOTE: Countries are ordered according to life expectancy in 1950-1955 (both sexes).

TABLE IV.3. TRENDS OF LIFE EXPECTANCY AT BIRTH BY SEX FOR COUNTRIES OF AFRICA (EXCLUDING THOSE HIGHLY AFFECTED BY THE HIV/AIDS EPIDEMIC): 1950-1955 AND 1995-2000

	Both sexes (years)		*Male (years)*		*Female (years)*		*Change (per cent) 1995-2000 to 1950-1955*	
Major area or country or area	*1950-1955*	*1995-2000*	*1950-1955*	*1995-2000*	*1950-1955*	*1995-2000*	*Male*	*Female*
Africa								
Réunion	52.7	74.6	49.7	70.4	55.6	78.8	142	142
Mauritius	51.0	70.7	49.7	66.9	52.3	74.8	134	143
Cape Verde	48.5	68.6	47.0	65.5	50.0	71.3	139	143
Sao Tome and Principe	46.4	68.4	44.0	65.5	49.2	71.3	149	145
Tunisia	44.6	71.7	44.1	69.8	45.1	73.7	158	163
Algeria	43.1	67.9	42.1	66.6	44.2	69.3	158	157
Morocco	42.9	66.6	41.9	64.8	43.9	68.5	155	156
Libyan Arab Jamahiriya	42.7	71.6	41.9	69.6	43.9	74.2	166	169
Egypt	42.4	67.0	41.2	65.2	43.6	69.0	158	158
Comoros	40.7	58.8	39.5	57.4	42.0	60.2	145	143
Madagascar	36.7	51.6	36.4	50.5	37.0	52.8	139	143
Senegal	36.5	50.9	35.5	48.8	37.5	53.1	138	142
Western Sahara	35.5	61.2	34.0	59.8	37.1	63.1	176	170
Mauritania	35.4	50.5	34.0	48.9	37.1	52.1	144	140
Somalia	33.0	44.8	31.5	43.3	34.5	46.3	137	134
Niger	32.2	44.2	31.9	43.9	32.5	44.5	138	137

NOTE: Countries are ordered according to life expectancy in 1950-1955 (both sexes).

TABLE IV.4. TRENDS OF LIFE EXPECTANCY AT BIRTH BY SEX FOR COUNTRIES OF ASIA (EXCLUDING THOSE HIGHLY AFFECTED BY THE HIV/AIDS EPIDEMIC): 1950-1955 AND 1995-2000

	Both sexes (years)		*Male (years)*		*Female (years)*		*Change (per cent) 1995-2000 to 1950-1955*	
Major area or country or area	*1950-1955*	*1995-2000*	*1950-1955*	*1995-2000*	*1950-1955*	*1995-2000*	*Male*	*Female*
Asia								
Cyprus	67.0	77.6	65.1	75.2	69.0	80.1	115	116
Israel	65.4	78.3	64.4	76.3	66.4	80.2	119	121
Japan	63.9	80.5	61.6	77.1	65.5	83.8	125	128
China, Hong Kong SAR	61.0	79.1	57.2	76.5	64.9	82.0	134	126
Singapore	60.4	77.2	58.8	75.1	62.1	79.3	128	128
Brunei Darussalam	60.4	75.5	59.6	73.4	61.1	78.1	123	128
Lebanon	55.9	72.6	54.3	71.1	57.7	74.1	131	128
Kuwait	55.6	75.7	54.1	74.1	57.5	78.2	137	136
Sri Lanka	55.5	71.6	56.2	69.0	54.7	74.7	123	136
China, Macao SAR	54.0	78.1	51.5	75.7	56.5	80.4	147	142
Bahrain	50.9	73.0	49.6	71.3	52.5	75.1	144	143
Dem. People's Rep. of Korea	49.0	63.1	48.0	60.5	50.0	66.0	126	132
Malaysia	48.5	71.9	47.0	69.6	50.0	74.5	148	149
United Arab Emirates	48.0	73.8	46.7	72.3	49.3	76.4	155	155
Qatar	48.0	70.9	46.7	69.3	49.3	74.2	148	150
Philippines	47.8	68.6	46.0	66.5	49.6	70.7	145	143
Republic of Korea	47.5	74.4	46.0	70.6	49.0	78.3	154	160
Syrian Arab Republic	45.9	70.5	44.8	69.4	47.2	71.6	155	152
Iran (Islamic Republic of)	44.9	68.6	44.9	67.4	44.9	69.9	150	156
Iraq	44.0	58.7	43.1	57.2	44.9	60.3	133	134
Turkey	43.6	69.0	42.0	66.5	45.2	71.7	158	159
Occupied Palestinian Terr.	43.2	71.4	42.2	69.8	44.3	73.0	165	165
Jordan	43.2	69.7	42.2	68.5	44.3	71.0	162	160
Mongolia	42.2	61.9	41.0	59.9	43.5	63.9	146	147
Pakistan	41.0	59.0	42.3	59.2	39.8	58.9	140	148
Viet Nam	40.4	67.2	39.1	64.9	41.8	69.6	166	167
Saudi Arabia	39.9	70.9	39.1	69.9	40.7	72.2	179	177
Maldives	38.9	65.4	40.1	66.3	37.6	64.5	165	172
Lao People’s Dem. Republic	37.8	52.5	36.5	51.3	39.2	53.8	140	137
Oman	37.6	71.6	36.9	70.2	38.3	73.4	190	192
Bangladesh	37.5	58.4	38.3	58.1	36.7	58.8	152	160
Indonesia	37.5	64.9	36.9	63.0	38.1	66.8	171	175
Nepal	36.3	57.4	36.8	57.6	35.8	57.1	157	160
Bhutan	35.2	60.7	34.5	59.5	36.0	62.0	172	172
Yemen	32.5	58.0	32.4	56.9	32.7	59.1	176	181
Afghanistan	31.9	42.1	32.0	41.9	31.7	42.3	131	133
Dem. Rep. of Timor-Leste	30.0	47.5	29.6	46.7	30.4	48.4	158	159

TABLE IV.4 (*continued*)

Major area or country or area	Both sexes (years) 1950-1955	Both sexes (years) 1995-2000	Male (years) 1950-1955	Male (years) 1995-2000	Female (years) 1950-1955	Female (years) 1995-2000	Change (per cent) 1995-2000 to 1950-1955 Male	Change (per cent) 1995-2000 to 1950-1955 Female
Successor States of the former USSR								
Armenia	64.8	71.4	61.8	68.0	67.9	74.6	110	110
Georgia	61.5	72.7	57.5	68.5	65.4	76.8	119	117
Azerbaijan	61.3	70.9	57.4	67.2	65.0	74.5	117	115
Kazakhstan	56.5	64.6	51.7	58.9	61.9	70.7	114	114
Uzbekistan	56.4	68.3	53.2	65.3	59.9	71.3	123	119
Tajikistan	55.7	67.2	53.3	64.2	58.4	70.2	121	120
Kyrgyzstan	55.4	66.9	51.3	62.8	59.8	71.1	123	119
Turkmenistan	53.0	65.4	49.7	61.9	56.6	68.9	125	122

NOTE: Countries are ordered according to life expectancy in 1950-1955 (both sexes).

TABLE IV.5. TRENDS OF LIFE EXPECTANCY AT BIRTH BY SEX FOR COUNTRIES OF LATIN AMERICA AND THE CARIBBEAN (EXCLUDING THOSE HIGHLY AFFECTED BY THE HIV/AIDS EPIDEMIC): 1950-1955 AND 1995-2000

	Both sexes (years)		*Male (years)*		*Female (years)*		*Change (per cent) 1995-2000 to 1950-1955*	
Major area or country or area	*1950-1955*	*1995-2000*	*1950-1955*	*1995-2000*	*1950-1955*	*1995-2000*	*Male*	*Female*
Latin America and the Caribbean								
Uruguay	66.1	74.2	63.3	70.5	69.4	78.0	111	112
United States Virgin Islands	64.9	77.3	58.9	73.4	71.5	81.5	125	114
Puerto Rico	64.3	74.9	62.7	70.4	66.0	79.6	112	121
Paraguay	62.6	69.7	60.7	67.5	64.7	72.0	111	111
Argentina	62.5	73.2	60.4	69.7	65.1	76.8	115	118
Netherlands Antilles	60.5	75.5	59.1	72.5	61.6	78.4	123	127
Cuba	59.3	76.0	57.8	74.2	61.3	78.0	128	127
Jamaica	58.5	74.8	56.9	72.9	60.2	76.8	128	128
Barbados	57.2	76.4	55.0	73.7	59.5	78.7	134	132
Costa Rica	57.2	77.3	56.0	75.0	58.6	79.7	134	136
Martinique	56.6	78.8	55.0	75.5	58.1	82.0	137	141
Guadeloupe	56.5	77.3	55.0	73.6	58.1	80.9	134	139
Suriname	56.0	70.1	54.4	67.5	57.7	72.7	124	126
Panama	55.2	73.7	54.4	71.3	56.2	76.4	131	136
Venezuela	55.1	72.8	53.8	70.0	56.6	75.7	130	134
Chile	54.7	75.3	52.9	72.3	56.8	78.3	137	138
Saint Lucia	54.1	71.5	52.7	69.8	55.3	73.1	132	132
French Guiana	53.3	74.2	50.3	71.5	56.9	77.5	142	136
Saint Vincent and the Grenadines	51.1	73.2	49.8	71.8	52.3	74.6	144	143
Colombia	50.6	70.7	49.0	67.3	52.3	74.3	137	142
Mexico	50.6	72.5	48.9	69.5	52.5	75.5	142	144
Ecuador	48.4	69.8	47.1	67.3	49.6	72.5	143	146
El Salvador	45.3	69.5	44.1	66.5	46.5	72.5	151	156
Peru	43.9	68.3	42.9	65.9	45.0	70.9	154	157
Nicaragua	42.3	68.0	40.9	65.7	43.7	70.4	161	161
Guatemala	42.0	64.2	41.8	61.4	42.3	67.2	147	159
Bolivia	40.4	62.1	38.5	60.1	42.5	64.0	156	151

NOTE: Countries are ordered according to life expectancy in 1950-1955 (both sexes).

TABLE IV.6. TRENDS OF LIFE EXPECTANCY AT BIRTH BY SEX FOR COUNTRIES OF OCEANIA: 1950-1955 AND 1995-2000

Major area or country or area	*Both sexes (years)*		*Male (years)*		*Female (years)*		*Change (per cent) 1995-2000 to 1950-1955*	
	1950-1955	*1995-2000*	*1950-1955*	*1995-2000*	*1950-1955*	*1995-2000*	*Male*	*Female*
Oceania								
New Zealand	69.6	77.6	67.5	75.0	71.8	80.2	111	112
Australia	69.6	78.7	66.9	75.9	72.4	81.5	113	113
Guam	57.0	73.5	55.4	71.4	59.7	76.0	129	127
Tonga	54.6	67.0	54.1	66.5	55.2	67.6	123	123
Micronesia (Fed. States of)	54.6	67.1	54.1	66.5	55.2	67.6	123	123
Fiji	52.5	68.4	50.8	66.6	55.0	70.3	131	128
New Caledonia	51.4	74.0	50.0	71.5	53.0	76.7	143	145
French Polynesia	48.9	71.7	48.0	69.4	50.0	74.4	145	149
Samoa	45.9	68.4	43.0	65.4	49.6	71.9	152	145
Solomon Islands	45.4	67.4	44.9	66.4	46.4	68.7	148	148
Vanuatu	42.0	67.2	40.6	66.0	43.5	69.0	162	159
Papua New Guinea	34.7	55.5	33.8	54.8	35.7	56.7	162	159

NOTE: Countries are ordered according to life expectancy in 1950-1955 (both sexes).

TABLE IV.7. TRENDS OF LIFE EXPECTANCY AT BIRTH BY SEX FOR COUNTRIES HIGHLY AFFECTED BY THE HIV/AIDS EPIDEMIC: 1950-1955 AND 1995-2000

Major area or country or area	Both sexes (years)		Male (years)		Female (years)		Change (per cent) 1995-2000 to 1950-1955	
	1950-1955	1995-2000	1950-1955	1995-2000	1950-1955	1995-2000	Male	Female
Africa								
Zimbabwe	47.4	40.8	45.9	39.7	49.1	42.0	87	86
Botswana	46.0	56.3	44.7	53.6	47.2	58.8	120	125
South Africa	45.0	58.2	44.0	53.7	46.0	63.1	122	137
Congo	42.1	49.2	39.8	46.8	44.6	51.8	118	116
Ghana	42.0	57.3	40.5	55.4	43.6	59.2	137	136
Lesotho	41.7	46.9	40.0	42.5	43.3	50.9	106	118
Kenya	40.9	50.7	39.0	48.2	43.0	53.4	124	124
Swaziland	40.1	47.2	38.7	43.9	41.5	50.4	113	121
Rwanda	40.0	35.5	38.5	34.7	41.6	36.4	90	88
Uganda	40.0	41.1	38.5	40.3	41.6	42.0	105	101
Namibia	39.2	54.5	38.0	51.6	40.5	57.5	136	142
Dem. Rep. of the Congo	39.1	38.0	37.5	36.8	40.6	39.1	98	96
Burundi	39.0	39.3	37.5	38.7	40.6	39.9	103	98
Liberia	38.5	41.8	37.1	40.7	40.0	42.9	110	107
Zambia	37.8	35.7	36.3	34.8	39.4	36.5	96	93
Sudan	37.6	55.0	36.3	53.6	39.1	56.4	148	144
United Rep. of Tanzania	37.0	45.5	35.5	44.0	38.6	47.1	124	122
Gabon	37.0	56.6	35.5	55.2	38.6	58.0	156	150
Nigeria	36.5	52.5	35.0	51.8	38.0	53.3	148	140
Malawi	36.3	40.7	35.8	39.3	36.7	42.2	110	115
Togo	36.0	51.8	34.5	49.6	37.5	54.0	144	144
Cameroon	36.0	52.0	34.5	50.1	37.5	53.9	145	144
Côte d'Ivoire	36.0	43.2	34.5	42.2	37.5	44.3	122	118
Eritrea	35.9	52.0	34.5	50.3	37.4	53.7	146	144
Central African Republic	35.5	42.6	33.0	40.5	38.0	44.7	123	118
Equatorial Guinea	34.5	48.5	33.0	47.0	36.0	50.1	142	139
Benin	33.9	51.4	32.5	49.1	35.6	53.8	151	151
Djibouti	33.0	47.0	31.5	45.5	34.5	48.5	144	141
Ethiopia	32.9	46.1	31.4	44.7	34.4	47.5	142	138
Mali	32.7	47.9	32.2	47.2	33.3	48.5	147	146
Chad	32.5	44.4	31.1	43.0	34.0	45.8	138	135
Guinea-Bissau	32.5	44.4	31.1	42.8	34.0	46.1	138	136
Burkina Faso	31.9	45.9	30.5	44.6	33.4	47.0	146	141
Mozambique	31.3	41.5	30.1	39.2	32.5	43.8	130	135
Guinea	31.0	47.0	30.5	46.5	31.5	47.6	152	151
Gambia	30.0	52.7	28.6	51.1	31.5	54.4	179	173
Angola	30.0	40.2	28.6	38.7	31.5	41.8	135	133
Sierra Leone	30.0	34.9	28.6	33.5	31.5	36.4	117	116
Asia								
Thailand	52.0	68.1	49.8	64.0	54.3	72.5	128	134
China	40.8	69.7	39.3	67.8	42.3	71.9	173	170
Cambodia	39.4	57.2	38.1	55.1	40.8	59.0	145	145
India	38.7	62.1	39.4	61.7	38.0	62.5	157	164
Myanmar	36.8	56.4	35.6	54.0	38.2	58.9	152	154
Europe								
Russian Federation	64.5	66.1	60.5	60.2	67.3	72.5	99	108

Table IV.7 (*continued*)

Major area or country or area	*Both sexes (years)* 1950-1955	1995-2000	*Male (years)* 1950-1955	1995-2000	*Female (years)* 1950-1955	1995-2000	*Change (per cent) 1995-2000 to 1950-1955* Male	Female
Latin America and the Caribbean								
Bahamas	59.8	67.3	58.3	63.4	61.2	71.4	109	117
Trinidad and Tobago	59.1	72.1	58.2	69.2	59.9	75.2	119	126
Belize	57.7	72.5	57.1	71.0	58.3	74.2	124	127
Guyana	52.3	63.6	50.8	60.2	53.9	67.1	119	124
Brazil	50.9	67.1	49.3	63.0	52.7	71.5	128	136
Dominican Republic	45.9	66.9	44.7	64.5	47.3	69.5	144	147
Honduras	41.8	68.6	40.5	66.2	43.2	71.2	164	165
Haiti	37.6	48.2	36.3	47.2	38.9	49.2	130	127
Northern America								
United States of America	68.9	76.2	66.1	73.2	72.0	79.1	111	110

NOTE: Countries are ordered according to life expectancy in 1950-1955 (both sexes).

TABLE IV.8. TWENTY COUNTRIES OR AREAS WITH THE HIGHEST AND TWENTY COUNTRIES OR AREAS WITH THE LOWEST LIFE EXPECTANCY AT BIRTH FOR SELECTED PERIODS, ESTIMATES AND MEDIUM VARIANT: 1950-2050

Rank	*Country or area*	*1950-1955*	*Country or area*	*1995-2000*	*Country or area*	*2000-2005*	*Country or area*	*2025-2030*	*Country or area*	*2045-2050*
					A. Highest life expectancy at birth (years)					
1	Norway	72.7	Japan	80.5	Japan	81.6	Japan	85.9	Japan	88.1
2	Netherlands	72.1	Sweden	79.3	Sweden	80.1	China, Hong Kong SAR	82.7	China, Hong Kong SAR	84.8
3	Iceland	72.0	Iceland	79.3	China, Hong Kong SAR	79.9	Sweden	82.6	Sweden	84.6
4	Sweden	71.8	China, Hong Kong SAR	79.1	Iceland	79.8	Spain	82.1	China, Macao SAR	84.2
5	Denmark	71.0	Martinique	78.8	Canada	79.3	France	82.0	Spain	84.1
6	Channel Islands	70.6	Australia	78.7	Spain	79.3	China, Macao SAR	82.0	France	84.0
7	New Zealand	69.6	Canada	78.7	Australia	79.2	Israel	82.0	Belgium	83.8
8	Australia	69.6	Switzerland	78.6	Israel	79.2	Belgium	81.8	Norway	83.7
9	Switzerland	69.2	Spain	78.4	Martinique	79.1	Iceland	81.8	Australia	83.7
10	United Kingdom	69.2	Israel	78.3	Switzerland	79.1	Malta	81.7	Luxembourg	83.7
11	Canada	69.1	Italy	78.2	France	79.0	Norway	81.7	Malta	83.7
12	United States of America	68.9	China, Macao SAR	78.1	Norway	78.9	Australia	81.7	Austria	83.6
13	Belgium	67.5	Norway	78.1	China, Macao SAR	78.9	Luxembourg	81.7	Israel	83.5
14	Germany	67.5	France	78.1	Belgium	78.8	Austria	81.7	Germany	83.5
15	Czech Republic	67.4	Belgium	77.9	Italy	78.7	Canada	81.7	Iceland	83.4
16	Cyprus	67.0	Netherlands	77.9	Austria	78.5	Guadeloupe	81.6	Canada	83.3
17	Ireland	66.9	Greece	77.8	Malta	78.4	Martinique	81.5	Guadeloupe	83.2
18	France	66.5	Austria	77.7	Luxembourg	78.4	United Kingdom	81.5	Martinique	83.1
19	Finland	66.3	New Zealand	77.6	Netherlands	78.3	Germany	81.4	United Kingdom	83.0
20	Uruguay	66.1	Cyprus	77.6	Germany	78.3	Singapore	81.4	Singapore	83.0
					B. Lowest life expectancy at birth (years)					
1	Dem. Rep. of Timor-Leste	30.0	Sierra Leone	34.9	Zambia	32.4	Swaziland	35.1	Swaziland	43.4
2	Sierra Leone	30.0	Rwanda	35.5	Zimbabwe	33.1	Botswana	36.1	Botswana	43.6
3	Angola	30.0	Zambia	35.7	Sierra Leone	34.2	Lesotho	36.8	Lesotho	44.1
4	Gambia	30.0	Dem. Rep. of the Congo	38.0	Swaziland	34.4	Zimbabwe	37.1	Zimbabwe	45.7
5	Guinea	31.0	Burundi	39.3	Lesotho	35.1	Zambia	41.4	Sierra Leone	52.3
6	Mozambique	31.3	Angola	40.2	Malawi	37.5	Sierra Leone	42.5	Zambia	52.3
7	Afghanistan	31.9	Malawi	40.7	Mozambique	38.1	Mozambique	44.8	Kenya	54.1
8	Burkina Faso	31.9	Zimbabwe	40.8	Rwanda	39.3	Namibia	45.2	Mozambique	54.2
9	Niger	32.2	Uganda	41.1	Central African Republic	39.5	Malawi	46.7	Namibia	54.3
10	Chad	32.5	Mozambique	41.5	Botswana	39.7	South Africa	47.1	South Africa	55.7

Table IV.8 (*continued*)

Rank	Country or area	1950-1955	Country or area	1995-2000	Country or area	2000-2005	Country or area	2025-2030	Country or area	2045-2050
11	Guinea-Bissau	32.5	Liberia	41.8	Angola	40.1	Central African Republic	47.7	Malawi	56.5
12	Yemen	32.5	Afghanistan	42.1	Burundi	40.9	Angola	48.1	Central African Republic	57.1
13	Mali	32.7	Central African Republic	42.6	Côte d'Ivoire	41.0	Liberia	49.5	Angola	58.2
14	Ethiopia	32.9	Côte d'Ivoire	43.2	Liberia	41.4	Kenya	49.7	Cameroon	59.0
15	Somalia	33.0	Niger	44.2	Dem. Rep. of the Congo	41.8	Cameroon	50.8	Liberia	59.2
16	Djibouti	33.0	Chad	44.4	Afghanistan	43.1	Burundi	50.9	Dem. Rep. of the Congo	60.8
17	Benin	33.9	Guinea-Bissau	44.4	United Rep. of Tanzania	43.3	Dem. Rep. of the Congo	51.5	Burundi	61.0
18	Equatorial Guinea	34.5	Somalia	44.8	Namibia	44.3	Rwanda	52.2	Afghanistan	62.4
19	Papua New Guinea	34.7	United Rep. of Tanzania	45.5	Kenya	44.6	Côte d'Ivoire	52.4	Côte d'Ivoire	62.7
20	Bhutan	35.2	Burkina Faso	45.9	Chad	44.7	United Rep. of Tanzania	53.2	Rwanda	62.8

TABLE IV.9. CHILD MORTALITY OF THE WORLD BY DEVELOPMENT GROUP, MAJOR AREA AND REGION FOR SELECTED PERIODS, ESTIMATES AND MEDIUM VARIANT: 1950-2050

	Infant mortality (infant deaths per thousand live births)				
Development group, major area or region	*1950-1955*	*1995-2000*	*2000-2005*	*2025-2030*	*2045-2050*
World	157.2	60.9	55.6	33.7	21.5
More developed regions	59.1	8.2	7.5	5.4	4.5
Less developed regions	180.1	66.8	60.9	36.7	23.5
Least developed countries	196.0	107.5	97.2	59.1	35.4
Other less developed countries	177.8	55.7	50.0	27.6	18.2
Africa	181.9	96.7	88.5	54.5	33.1
Eastern Africa	182.4	102.9	96.6	57.1	33.2
Middle Africa	186.4	138.4	116.0	76.3	47.3
Northern Africa	188.0	57.1	48.7	22.9	14.0
Southern Africa	104.5	52.3	51.9	31.6	22.0
Western Africa	191.6	96.3	90.0	53.5	33.2
Asia	182.1	59.5	53.2	30.1	19.9
Eastern Asia	181.3	38.5	34.0	19.0	12.8
South-central Asia	187.1	76.1	68.2	40.0	26.9
South-eastern Asia	168.2	47.6	41.1	20.1	12.8
Western Asia	189.1	50.2	43.9	19.9	12.5
Europe	72.4	9.7	8.9	6.0	4.8
Eastern Europe	91.3	15.0	14.1	9.0	6.9
Northern Europe	32.9	5.9	5.4	4.0	3.4
Southern Europe	76.1	8.2	7.5	5.4	4.6
Western Europe	45.4	5.1	4.7	4.0	3.6
Latin America and the Caribbean	126.2	35.7	31.9	17.0	9.9
Caribbean	124.3	38.5	35.4	20.7	11.5
Central America	127.1	32.9	29.8	17.6	11.7
South America	126.1	36.7	32.5	16.5	9.0
Northern America	28.6	7.1	6.6	5.3	4.6
Oceania	61.9	28.7	25.9	13.9	8.6
Australia/New Zealand	24.2	6.4	5.6	4.4	3.5
Melanesia	145.7	59.4	53.3	27.5	16.6
Micronesia	99.2	23.7	20.6	10.3	7.4
Polynesia	111.8	24.6	21.1	11.2	7.7

TABLE IV.10. CHILD MORTALITY OF THE WORLD BY DEVELOPMENT GROUP, MAJOR AREA AND REGION FOR SELECTED PERIODS, ESTIMATES AND MEDIUM VARIANT: 1995-2050

Development group, major area or region	*Under-five mortality (deaths under age five per thousand live births)*			
	1995-2000	*2000-2005*	*2025-2030*	*2045-2050*
World	88	81	48	29
More developed regions	10	10	7	6
Less developed regions	97	89	52	31
Least developed countries	176	161	93	51
Other less developed countries	75	67	36	23
Africa	160	148	88	49
Eastern Africa	175	163	92	49
Middle Africa	230	207	128	74
Northern Africa	78	66	29	17
Southern Africa	78	88	59	42
Western Africa	162	151	85	48
Asia	80	71	38	24
Eastern Asia	46	40	22	15
South-central Asia	106	93	52	33
South-eastern Asia	65	55	25	15
Western Asia	66	57	23	14
Europe	12	11	8	6
Eastern Europe	19	18	12	10
Northern Europe	7	7	5	4
Southern Europe	10	9	7	6
Western Europe	6	6	5	5
Latin America and the Caribbean	45	41	22	13
Caribbean	62	58	34	20
Central America	41	38	23	15
South America	46	40	21	12
Northern America	9	8	7	6
Oceania	39	35	17	10
Australia/New Zealand	8	7	5	1
Melanesia	82	72	34	20
Micronesia	30	26	12	9
Polynesia	31	26	13	9

TABLE IV.11. TWENTY COUNTRIES OR AREAS WITH THE HIGHEST AND TWENTY COUNTRIES OR AREAS WITH THE LOWEST INFANT MORTALITY FOR SELECTED PERIODS, ESTIMATES AND MEDIUM VARIANT: 1995-2050

Rank	*Country or area*	*1995-2000*	*Country or area*	*2000-2005*	*Country or area*	*2025-2030*	*Country or area*	*2045-2050*
			A. Highest infant mortality rate (infant deaths per thousand live births)					
1	Sierra Leone	182	Sierra Leone	177	Sierra Leone	120	Afghanistan	84
2	Afghanistan	167	Afghanistan	162	Afghanistan	118	Sierra Leone	83
3	Dem. Rep. of the Congo	157	Liberia	147	Liberia	92	Angola	59
4	Liberia	152	Angola	140	Angola	92	Liberia	54
5	Angola	150	Niger	126	Dem. Rep. of the Congo	80	Dem. Rep. of the Congo	49
6	Niger	136	Dem. Rep. of Timor-Leste	124	Niger	80	Mozambique	47
7	Dem. Rep. of Timor-Leste	135	Mozambique	122	Mozambique	78	Niger	46
8	Somalia	133	Guinea-Bissau	120	Guinea-Bissau	76	Guinea-Bissau	46
9	Mozambique	130	Dem. Rep. of the Congo	120	Chad	72	Chad	42
10	Guinea-Bissau	130	Mali	119	Somalia	68	Mali	41
11	Mali	126	Somalia	118	Mali	68	Malawi	40
12	Malawi	125	Malawi	115	Malawi	66	Burundi	37
13	Chad	123	Chad	115	Rwanda	65	Central African Republic	37
14	Rwanda	121	Rwanda	112	Burundi	65	United Rep. of Tanzania	37
15	Burundi	117	Burundi	107	United Rep of Tanzania	65	Zambia	36
16	Guinea	115	Zambia	105	Dem. Rep. of Timor-Leste	64	Somalia	36
17	Djibouti	110	Djibouti	102	Central African Republic	63	Guinea	35
18	Zambia	110	Guinea	102	Zambia	62	Myanmar	35
19	Equatorial Guinea	109	Côte d'Ivoire	101	Guinea	61	Ethiopia	35
20	Ethiopia	109	Equatorial Guinea	101	Djibouti	60	Rwanda	34
			B. Lowest infant mortality rate (infant deaths per thousand live births)					
1	Sweden	4	Singapore	3	Japan	3	Sweden	2
2	Iceland	4	Japan	3	Sweden	3	Japan	2
3	Singapore	4	Sweden	3	Singapore	3	Iceland	3
4	Japan	4	Iceland	3	Iceland	3	Finland	3
5	China, Hong Kong SAR	4	Finland	4	Finland	3	Singapore	3
6	Finland	4	China, Hong Kong SAR	4	Republic of Korea	3	Norway	3
7	Belgium	4	Belgium	4	China, Hong Kong SAR	4	Luxembourg	3
8	Netherlands	5	Netherlands	4	Norway	4	China, Hong Kong SAR	3
9	Norway	5	Norway	4	Belgium	4	Republic of Korea	3

TABLE IV.11 (*continued*)

Rank	*Country or area*	*1995-2000*	*Country or area*	*2000-2005*	*Country or area*	*2025-2030*	*Country or area*	*2045-2050*
10	Germany	5	Germany	4	Germany	4	Belgium	3
11	Switzerland	5	Austria	5	Luxembourg	4	United Kingdom	3
12	Austria	5	Switzerland	5	Austria	4	Australia	4
13	Canada	6	France	5	United Kingdom	4	Germany	4
14	France	6	Republic of Korea	5	Netherlands	4	Austria	4
15	Spain	6	Denmark	5	Denmark	4	Denmark	4
16	Italy	6	Spain	5	Czech Republic	4	France	4
17	Channel Islands	6	Canada	5	Slovenia	4	Cuba	4
18	Luxembourg	6	Italy	5	France	4	Spain	4
19	United Kingdom	6	Luxembourg	5	Switzerland	4	Netherlands	4
20	Denmark	6	United Kingdom	5	Spain	4	Slovenia	4

TABLE IV.12. TWENTY COUNTRIES OR AREAS WITH THE HIGHEST AND TWENTY COUNTRIES OR AREAS WITH THE LOWEST CHILD MORTALITY FOR SELECTED PERIODS, ESTIMATES AND MEDIUM VARIANT: 1995-2050

Rank	*Country or area*	*1995-2000*	*Country or area*	*2000-2005*	*Country or area*	*2025-2030*	*Country or area*	*2045-2050*
	A. Highest mortality under age five (deaths under age five per thousand live births)							
1	Sierra Leone	318	Sierra Leone	307	Sierra Leone	209	Sierra Leone	139
2	Afghanistan	291	Afghanistan	280	Afghanistan	185	Afghanistan	115
3	Angola	263	Angola	247	Angola	156	Angola	95
4	Dem. Rep. of the Congo	257	Liberia	229	Liberia	139	Liberia	77
5	Liberia	247	Dem. Rep. of the Congo	219	Mozambique	133	Mozambique	77
6	Guinea-Bissau	228	Mozambique	215	Dem. Rep. of the Congo	133	Dem. Rep. of the Congo	77
7	Mozambique	228	Niger	210	Niger	126	Guinea-Bissau	70
8	Niger	228	Guinea-Bissau	210	Guinea-Bissau	126	Niger	67
9	Somalia	223	Chad	201	Chad	119	Chad	64
10	Chad	215	Somalia	195	Zambia	109	Swaziland	63
11	Burundi	208	Burundi	188	Burundi	108	Zambia	60
12	Rwanda	206	Malawi	186	Central African Republic	106	Malawi	59
13	Malawi	204	Zambia	185	Somalia	105	Lesotho	59
14	Guinea	202	Dem. Rep. of Timor-Leste	183	Malawi	104	Central African Republic	58
15	Dem. Rep. of Timor-Leste	201	Mali	181	United Rep. of Tanzania	102	Burundi	57
16	Mali	193	Rwanda	179	Djibouti	99	Botswana	55
17	Zambia	193	Djibouti	177	Mali	98	Mali	54
18	Djibouti	189	Guinea	176	Côte d'Ivoire	98	United Rep. of Tanzania	53
19	Ethiopia	189	Central African Republic	173	Ethiopia	98	Zimbabwe	53
20	Equatorial Guinea	188	Ethiopia	173	Guinea	97	Ethiopia	52
	B. Lowest mortality under age five(deaths under age five per thousand live births)							
1	Iceland	4	Singapore	4	Japan	4	Japan	3
2	Sweden	4	Iceland	4	Sweden	4	Sweden	3
3	Singapore	5	Sweden	4	Iceland	4	Iceland	4
4	Japan	5	Japan	4	Singapore	4	Finland	4
5	Finland	5	Finland	5	Finland	4	Norway	4
6	China, Hong Kong SAR	5	China, Hong Kong SAR	5	China, Hong Kong SAR	5	Singapore	4
7	Germany	6	Germany	6	Republic of Korea	5	China, Hong Kong SAR	4
8	Norway	6	Austria	6	Norway	5	Luxembourg	4

TABLE IV.12 (*continued*)

Rank	*Country or area*	*1995-2000*	*Country or area*	*2000-2005*	*Country or area*	*2025-2030*	*Country or area*	*2045-2050*
9	Switzerland	6	Switzerland	6	Germany	5	Australia	4
10	Belgium	6	Norway	6	Czech Republic	5	United Kingdom	4
11	Netherlands	6	Czech Republic	6	Austria	5	Austria	4
12	Austria	7	Belgium	6	Belgium	5	Germany	4
13	Canada	7	France	6	Luxembourg	5	Belgium	4
14	France	7	Netherlands	6	United Kingdom	5	Republic of Korea	5
15	Channel Islands	7	Canada	6	France	5	France	5
16	Italy	7	Denmark	6	Switzerland	5	Spain	5
17	Spain	7	United Kingdom	7	Spain	5	Czech Republic	5
18	United Kingdom	7	Channel Islands	7	Australia	5	Switzerland	5
19	Luxembourg	7	Spain	7	Canada	5	Cuba	5
20	Czech Republic	7	Italy	7	Slovenia	5	Denmark	5

V. INTERNATIONAL MIGRATION

In all countries fertility and mortality exert a powerful influence on population growth and composition, but net international migration wields its influence more selectively. Much can be learned of the dimensions of net migration worldwide through study of a relatively small set of origin and destination countries. To be sure, a focus on net flows alone is unduly restrictive. Gross flow data separating emigration from immigration show greater country participation in world migratory movements than do net flow data. As of now, however, the gross data are not available for a sufficiently large set of countries to form the basis for projections.

Taken together, the less developed regions are now net suppliers of international migrants and the more developed regions are net recipients. This general pattern is expected to continue into the foreseeable future. But within geographic regions, net migration rates and levels can differ considerably by country, and intra-regional flows are often significant in both demographic and socio-economic terms.

The complexity of migration patterns stems, fundamentally, from the mix of motivations that propel migrants themselves, and the concerns of governments about the full social, economic, and political implications of international migration. The desire for economic betterment is a fundamental determinant of individual motivation, as is the desire for reunification with family members living elsewhere. National policies can also exert much influence on the number and composition of migrants, as amply demonstrated in the history of United States and Canadian policy toward Asian immigration (for a summary, see Martin and Widgren, 2002). In some regions, war, civil disturbance, and political strife have produced major upheavals resulting in outflows of international migrants, some of whom later return as the turmoil subsides. These factors are so various, difficult to anticipate, and country-specific, that demographic projections of migration must be treated with great caution.

A. A HISTORY OF STOCKS AND FLOWS

Family reunification is one of the driving forces in international migration, and in making their decisions, potential migrants draw upon information and assistance from family and from others who have already migrated. In this way, migrant social networks and informal chains of support established in the course of earlier migration tend to impart a built-in momentum to current migration, continuing to shape its level and direction. For these reasons, a review of recent history and a summary of current “stocks” of the foreign-born may be helpful in understanding projections of future migratory flows. United Nations (2002b) provides a full description of these stocks, and the account below is based on this source.

From the beginning of the nineteenth century until the first world war, the principal international streams of migration carried people from Europe to various destinations in Northern America (the United States of America and Canada), to Australia and New Zealand, and to Brazil and Argentina in South America. After the Second World War there came some easing of restrictions on migration that were put in place in the 1920s and 1930s, and the less developed regions began to contribute significantly to the international flows, with migrant destinations including Western Europe, and, as further economic opportunities arose, the Persian Gulf, Japan, and some of the rapidly growing Eastern Asian countries.

By 1965 the world’s stock of international migrants (the foreign-born, that is, people residing in a country other than their country of birth) totalled 75 million (United Nations, 2002b). By 1990, that total had risen to 154 million, and an estimate for 2000 puts the current total at about 175 million. The foreign-born accounted for 19.1 per cent of the population of Oceania in 2000, 13.0 per cent of Northern America, 7.7 per cent of Europe, 2.1 per cent of Africa, 1.1 per cent of Latin America and the Caribbean, and 1.4 per cent of Asia’s population.

The very complex regional patterns that have been characteristic of recent migration can only be briefly described here. Africa had a stock of some 16.3 million foreign-born in 2000. In this region, refugees have been a prominent group among all migrants. Within the region, there are small but long-standing migratory flows linking various countries, including flows from Burkina Faso, Guinea, and Mali to Côte d'Ivoire, and from Botswana, Lesotho, and Swaziland to South Africa. In North Africa, however, the principal migratory flows have been directed to Europe. Asia had a stock of some 50 million foreign-born migrants in 2000. In this region, beginning with the 1973 oil boom, substantial intra-regional migratory flows deposited workers in the Gulf states, and (in the mid-1980s) further flows have linked sending countries in Eastern and South-eastern Asia to the destinations of Japan, South Korea, Hong Kong, Singapore, and Malaysia. As in Africa, refugees make up a significant fraction of all migrants in Asia. Latin America and the Caribbean had a stock of 5.9 million foreign-born in 2000. In this region, Mexico has been the principal sender of migrants, most of whom have been bound for the United States of America. Argentina and Venezuela have also attracted many migrants. In the 1990s, however, European-origin people left both of these countries and returned to Europe. Japanese-origin people also left Brazil for Japan.

The United States of America, Canada, and Australia are today's major immigration countries, with the U.S. alone having a stock of some 35 million foreign-born in 2000, accounting for 12.4 per cent of the total population of this country. The proportions of foreign-born are even higher in Canada (18.9 per cent) and Australia (24.6 per cent). As for Northern, Southern, and Western Europe, their combined stock of foreign-born in 2000 was 31.3 million persons. This stock of migrants in Europe began to accumulate in connection with the reconstruction efforts undertaken after the Second World War, which were aided by large-scale labour recruitment. In the 1960s and 1970s these regions of Europe were much involved with "guest-worker" programs, which were subsequently cut back in the 1970s. However, family reunification flows attributable to these earlier programs still continue. Important migratory flows in the region involve Turkey, the former Yugoslavia, Greece, Italy, Portugal, and Spain.

The dissolution of the Union of Soviet Socialist Republics (USSR) has brought about a large change in estimates of the stock of foreign-born in this geographic region. As of 1989 some 2.4 million persons of the USSR were classified as foreign-born. In 2000, following the break-up of the Soviet Union into a number of independent countries, the foreign born among all these countries totalled 29.2 million (United Nations, 2002b, p. 6). This reclassification has added some 27 million foreign-born to the world total. Eastern Europe (which includes the Russian Federation, Belarus and the Ukraine) had in 2000 a stock of some 24.8 million foreign-born. This region has served as a transit point for migration to Western Europe. The Ukraine, Kazakhstan, and other Central Asian republics have been important suppliers of migrants to the Russian Federation.

B. NET MIGRATION LEVELS AND RATES

Figure V.1 shows the estimates and medium variant projections for annual net migration over the years from 1950 to 2050. As the figure indicates, the total numbers of international migrants increased steadily over the latter half of the twentieth century. The least developed countries have been, and are projected to continue to be, net suppliers of international migrants to the other two groups of countries. Annual migration flows from these countries have varied considerably over recent years, but in the latter part of the projection period are expected to average about 281 thousand people. Some of these migrants will move to other less developed countries, with the remainder going to the more developed regions. (Recall that paired origin-destination data for all countries are not available to be used in this *Revision*.) The other less developed countries have also exhibited substantial variation in annual migration, but as of a decade from now, they are projected to supply an annual average of about 1.7 million people to the rest of the world. The more developed regions are thus net receivers of international migrants from less developed regions as a group. These developed countries are expected to accommodate an average of about 2 million migrants annually over the upcoming decades.

Figure V.1. Annual net international migration flows by development group, estimates and medium variant: 1950–2050

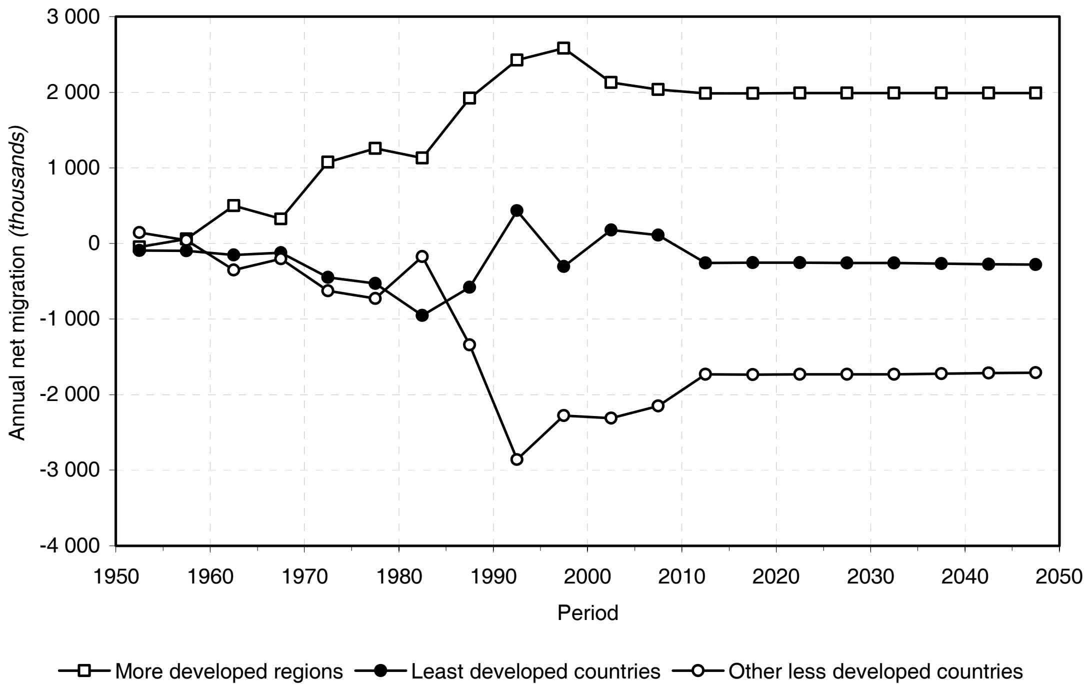


Figure V.2 displays estimates and projections of the annual numbers of net migrants to 2050, again presenting the results by major world region. The totals reveal clearly the dominant influence of Asia among the sending regions, closely followed by Latin America and the Caribbean. Oceania is a net receiving region, although its migrant totals are expected to be relatively small by comparison with those of Europe and Northern America.

Averaged over 2000–2050, the main recipients of international migrants are expected to be the United States of America (with an anticipated 1.1 million migrants annually), Germany (with 211,000), Canada (173,000), the United Kingdom (136,000), and Australia (83,000). The major net senders of migrants are China (303,000 net migrants annually), Mexico (267,000), India (222,000), the Philippines (184,000), and Indonesia (180,000).

As large as the figures are for total net migration, only in selected regions do they rival natural increase as sources of population growth. Figure V.3 compares Crude Net Migration Rates (CNMRs) with crude and natural rates of population growth over the 1990-2000 period. (Some averaging of migration rates over time is helpful in eliminating the distorting influence of period-specific historical events.) As is evident in the figure, crude migration rates in Africa, Asia, and Latin America and the Caribbean are dwarfed by rates of natural growth. In Europe over 1990-2000, however, it was international migration that kept population growth weakly positive. Migration also had a substantial impact on population growth rates in Northern America and Oceania. Hence, although negligible in relation to natural increase in the less developed regions (and even here, of course, migration can be very significant in social and economic terms), net migration is quite important in sustaining and increasing population growth in the generally more developed regions.

The comparisons among net migration rates, population growth rates, and rates of natural increase are extended to the subregional level in figures V.4 and V.5. It can be seen that although rates of net migration are generally low for Africa

Figure V.2. Annual net migration by major area, estimates and medium variant: 1950–2050

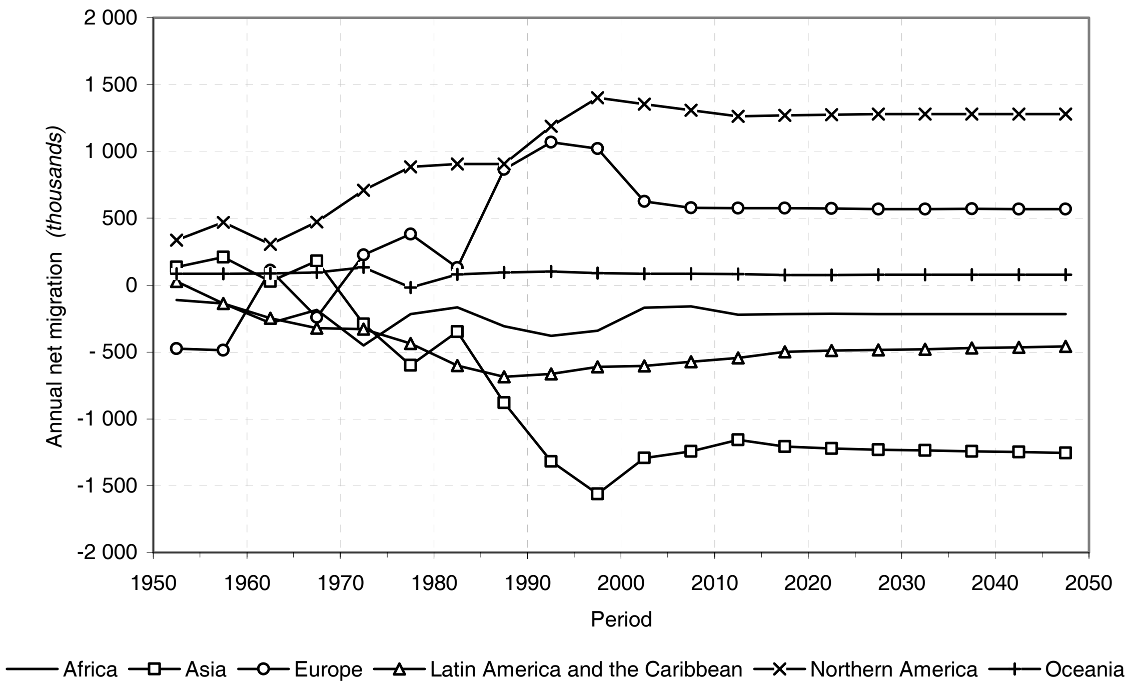


Figure V.3. Average annual rates of population change, rates of natural increase, and rates of net migration by region: 1990–2000

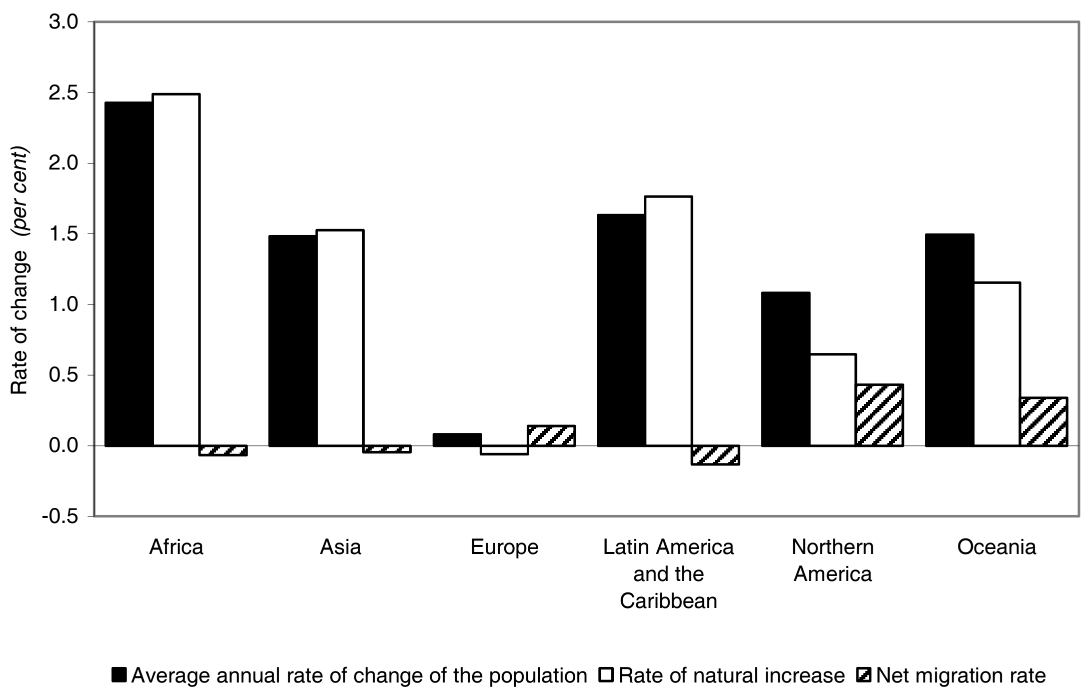
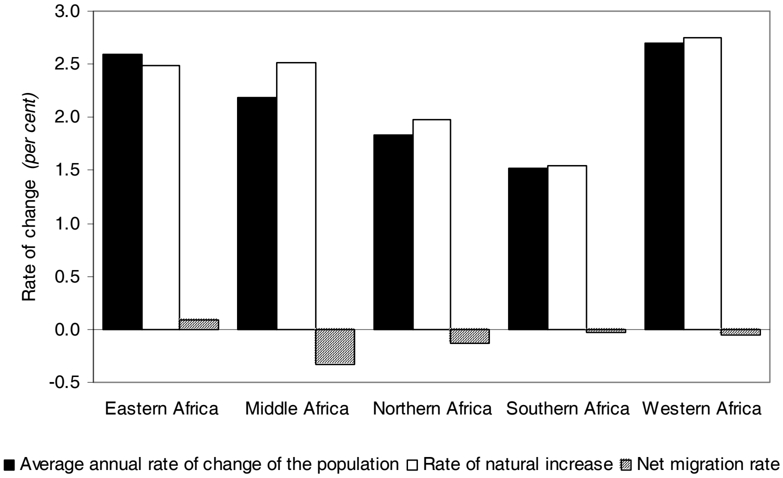
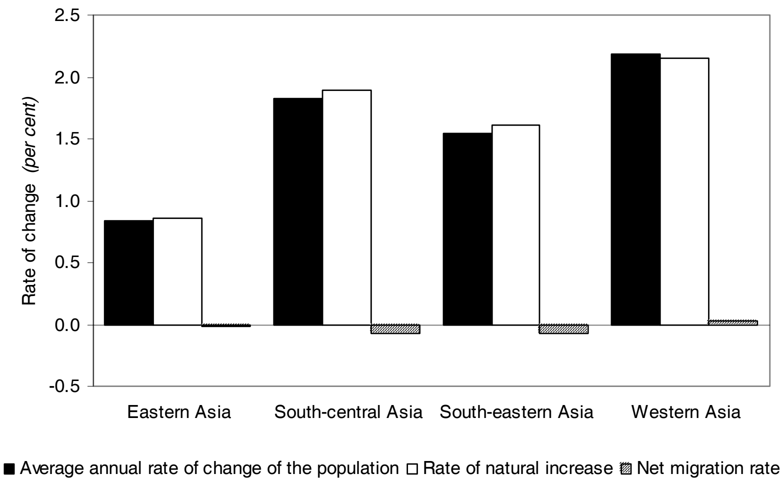


Figure V.4. Average annual rates of change of population and rates of net migration in regions of Africa, Asia and Latin America and the Caribbean: 1995–2000

A. Africa



B. Asia



C. Latin America and the Caribbean

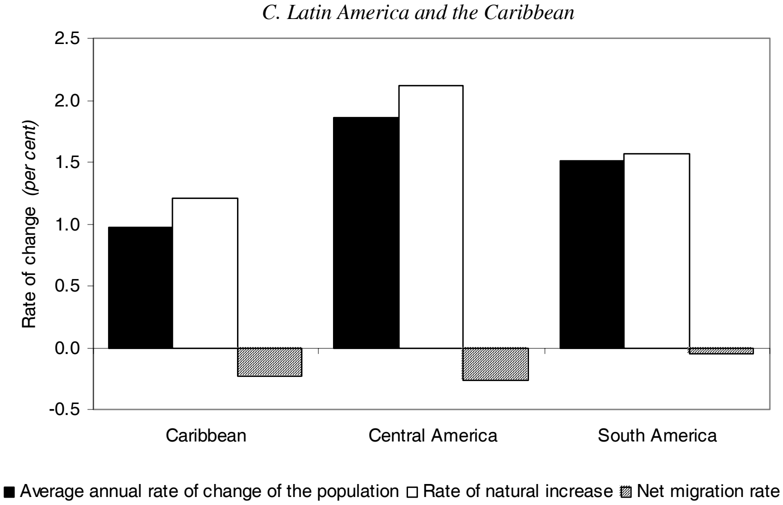
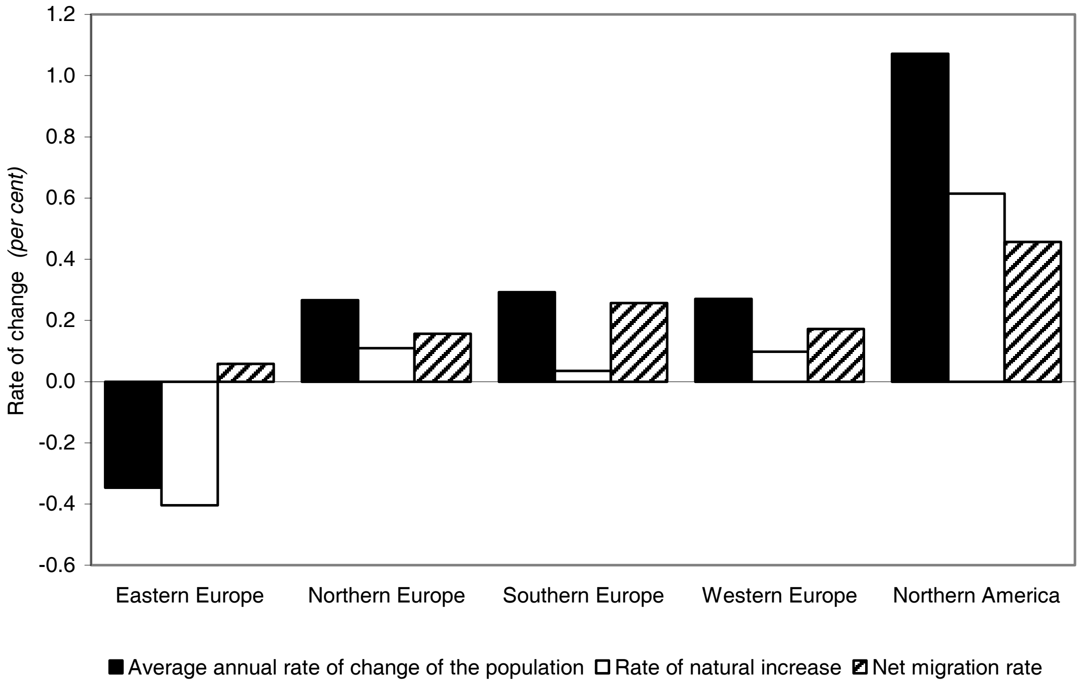


Figure V.5. Average annual rates of change of population, rates of natural increase and rates of net migration in regions of Europe, Northern America and Oceania: 1995–2000

A. Europe and Northern America



B. Oceania

and Asia (but as just noted, low rates for Asia yield large numbers of migrants given that region's total population), the rates of out-migration are substantial in Central America and the Caribbean. With the exception of Eastern Europe, where both population growth and net migration are negative, the other subregions of Europe are net recipients of migrants. In the Oceania region, Micronesia and Polynesia are notable for their high rates of outmigration. Of course, it is especially hazardous to extrapolate migration rates for less populous regions, because political and economic upheavals can bring about large if presumably temporary distortions in the level of migration.

The subregional estimates are suggestive of the further diversity that is evident at the country level. In 1995–2000, among more developed regions, the highest rates of net migration recorded were for Bosnia and Herzegovina at 2.7 per cent, Luxembourg and Greece at 0.9 per cent, Ireland at 0.6 per cent. Australia recorded a rate of 0.5 per cent, as did Canada, and the United States of America 4.5 per cent. The lowest rates of net migration in this group, all being cases of net population loss, were for Albania (-1.9 per cent), Estonia (-0.6), Latvia (-0.4), the Republic of Moldova (-0.3).

For the less developed regions in 1995–2000, the highest recorded rates were for Rwanda (a remarkable 6.1 per cent, attributable to return migration of refugees), Liberia (3.6), Kuwait (3.5), Singapore (2.0), and the Hong Kong SAR (1.5). The greatest rates of net loss through migration were seen in the Democratic Republic of Timor-Leste, which recorded an annual loss of -4.9 per cent, Micronesia (-2.4), Kazakhstan (-1.9), and Tonga (-1.8). The composition of this group illustrates the diversity of factors involved in international migration, including the onset and aftermath of political and ethnic strife, the economic pull exerted by natural resource industries, and the effects of national policies aiming to supplement the domestic work force. As mentioned above, caution should be exercised in extrapolating high positive or negative migration rates into the future, as these rates can be subject to temporary distortions.

C. A GUIDE TO THE ANNEX TABLES

The annex tables V.1 to V.3 provide additional information on net migration levels and rates. They show estimated and projected net migration figures for large geographic and developmental aggregates (annex table V.1) and for countries or areas with the largest or smallest number of net migration (annex tables V.2 and V.3).

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LIST OF ANNEX TABLES

TABLE V.1. ESTIMATED AND PROJECTED AVERAGE ANNUAL NET NUMBER OF MIGRANTS AND NET MIGRATION RATE PER DECADE BY DEVELOPMENT GROUP AND MAJOR AREA: 1950-2050

Development group or major area	*1950-1960*	*1960-1970*	*1970-1980*	*1980-1990*	*1990-2000*	*2000-2010*	*2010-2020*	*2020-2030*	*2030-2040*	*2040-2050*
					Net migration (thousands)					
More developed regions	5	414	1 167	1 526	2 504	2 084	1 987	1 989	1 990	1 990
Less developed regions	-5	-414	-1 167	-1 526	-2 504	-2 084	-1 987	-1 989	-1 990	-1 990
Least developed countries	-97	-137	-489	-768	65	143	-256	-258	-265	-278
Other less developed countries	91	-278	-678	-758	-2 569	-2 228	-1 731	-1 731	-1 725	-1 712
Africa	-125	-235	-334	-236	-359	-163	-219	-215	-217	-217
Asia	172	105	-445	-613	-1 440	-1 267	-1 182	-1 225	-1 237	-1 250
Europe	-481	-64	305	498	1 046	603	577	573	571	571
Latin America and the Caribbean	-55	-284	-382	-643	-638	-589	-521	-486	-475	-461
Northern America	404	388	800	907	1 295	1 332	1 267	1 277	1 280	1 280
Oceania	85	90	57	88	96	84	79	77	78	78
					Net migration rate (per thousand)					
More developed regions	0.0	0.4	1.1	1.4	2.1	1.7	1.6	1.6	1.6	1.6
Less developed regions	0.0	-0.2	-0.4	-0.4	-0.6	-0.4	-0.3	-0.3	-0.3	-0.3
Least developed countries	-0.4	-0.5	-1.4	-1.7	0.1	0.2	-0.3	-0.2	-0.2	-0.2
Other less developed countries	0.1	-0.1	-0.3	-0.2	-0.7	-0.5	-0.3	-0.3	-0.3	-0.3
Africa	-0.5	-0.7	-0.8	-0.4	-0.5	-0.2	-0.2	-0.2	-0.1	-0.1
Asia	0.1	0.1	-0.2	-0.2	-0.4	-0.3	-0.3	-0.3	-0.2	-0.2
Europe	-0.8	-0.1	0.5	0.7	1.4	0.8	0.8	0.8	0.8	0.9
Latin America and the Caribbean	-0.3	-1.1	-1.2	-1.6	-1.3	-1.1	-0.8	-0.7	-0.7	-0.6
Northern America	2.1	1.8	3.3	3.4	4.3	4.0	3.5	3.2	3.1	2.9
Oceania	5.9	5.1	2.7	3.5	3.3	2.6	2.2	1.9	1.8	1.7

TABLE V.2. TWENTY COUNTRIES AND AREAS WITH THE HIGHEST NUMBER OF NET INMIGRATION AND TWENTY COUNTRIES AND AREAS WITH THE LOWEST NUMBER OF NET OUTMIGRATION PER DECADE: 1950-2000

Rank	*Country or area*	*1950-1960*	*Country or area*	*1960-1970*	*Country or area*	*1970-1980*	*Country or area*	*1980-1990*	*Country or area*	*1990-2000*
					A. Highest number of net inmigration (thousands)					
1	United States of America	2 908	United States of America	2 781	United States of America	7 096	United States of America	7 850	United States of America	11 500
2	Kazakhstan	1 640	France	1 982	Somalia	1 588	Saudi Arabia	2 520	Germany	3 768
3	Canada	1 120	Germany	1 702	Saudi Arabia	1 379	Pakistan	2 506	Russian Federation	3 292
4	Germany	996	Canada	1 087	Germany	1 218	Russian Federation	1 986	Afghanistan	2 916
5	France	955	Kazakhstan	900	Canada	892	Germany	1 848	Canada	1 453
6	Australia	793	Australia	894	Nigeria	816	Iran (Islamic Republic of)	1 674	Spain	1 176
7	Brazil	549	Ukraine	595	Venezuela	725	Ethiopia	1 419	Italy	1 161
8	Republic of Korea	539	China	478	Australia	717	Canada	1 219	Australia	984
9	Israel	454	Côte d'Ivoire	375	Côte d'Ivoire	685	Australia	1 055	United Kingdom	955
10	Argentina	450	Dem. Rep. of the Congo	365	France	665	Malawi	865	Ethiopia	841
11	China, Hong Kong SAR	375	Jordan	345	United Arab Emirates	660	Côte d'Ivoire	680	Mozambique	805
12	Venezuela	340	South Africa	319	China, Hong Kong SAR	508	United Arab Emirates	629	China, Hong Kong SAR	780
13	Switzerland	296	Switzerland	309	Sudan	504	France	533	Greece	738
14	Ghana	292	Israel	299	Uzbekistan	328	Croatia	356	Israel	721
15	Republic of Moldova	281	Saudi Arabia	297	Netherlands	321	Switzerland	350	Jordan	633
16	Jordan	272	Uzbekistan	290	Russian Federation	320	Singapore	289	Malaysia	624
17	Georgia	216	Kuwait	268	South Africa	311	Zimbabwe	280	Singapore	618
18	Singapore	173	Argentina	250	Portugal	301	Kuwait	276	Yemen	600
19	Côte d'Ivoire	169	Republic of Moldova	217	Ukraine	248	South Africa	224	France	555
20	Armenia	126	Kyrgyzstan	216	Kuwait	244	Ukraine	220	Japan	528
					B. Highest number of net outmigration (thousands)					
1	Russian Federation	-1 328	Russian Federation	-1 338	Ethiopia	-2 123	Afghanistan	-4 873	China	-3 231
2	Italy	-1 010	Portugal	-1 273	Mexico	-1 581	Mexico	-2 846	Mexico	-3 150
3	Dem. People's Rep. of Korea	-891	Algeria	-838	China	-1 296	Mozambique	-1 673	Pakistan	-2 898
4	Spain	-777	Italy	-827	Egypt	-1 279	Philippines	-1 628	India	-2 682
5	Algeria	-722	Turkey	-722	Afghanistan	-1 117	Somalia	-1 386	Kazakhstan	-2 652
6	China	-713	Mexico	-706	Viet Nam	-813	Egypt	-1 000	Iran (Islamic Republic of)	-1 968
7	Portugal	-631	Spain	-601	Morocco	-787	India	-868	Philippines	-1 850
8	Belarus	-564	Colombia	-540	Ghana	-728	Kazakhstan	-765	Indonesia	-1 502
9	United Kingdom	-540	Cuba	-432	Cambodia	-710	Nigeria	-763	Egypt	-1 050
10	Puerto Rico	-470	Morocco	-423	Philippines	-573	China	-711	Malawi	-885

TABLE V.2 (*continued*)

Rank	Country or area	1950-1960	Country or area	1960-1970	Country or area	1970-1980	Country or area	1980-1990	Country or area	1990-2000
11	Mexico	-400	Ghana	-422	Colombia	-570	Iraq	-665	Peru	-800
12	Ireland	-395	Greece	-405	Kazakhstan	-496	Uzbekistan	-615	Somalia	-725
13	Ukraine	-356	India	-382	India	-490	Thailand	-608	Albania	-700
14	Colombia	-350	Yemen	-375	Sri Lanka	-428	El Salvador	-564	Armenia	-675
15	Poland	-304	Tunisia	-368	Yemen	-428	Viet Nam	-551	Burundi	-650
16	Tunisia	-282	Occupied Palestinian Terr.	-361	Poland	-424	Colombia	-515	Tajikistan	-612
17	Burkina Faso	-204	Burkina Faso	-289	Uganda	-407	Lebanon	-500	Romania	-587
18	Greece	-201	Bosnia and Herzegovina	-289	Lebanon	-390	Guatemala	-500	Bangladesh	-560
19	Hungary	-192	Jamaica	-280	Burkina Faso	-388	Indonesia	-484	Mali	-544
20	Jamaica	-178	Angola	-273	Turkey	-366	Mali	-458	Thailand	-522

TABLE V.3. COUNTRIES AND AREAS WITH THE HIGHEST NUMBER OF NET INMIGRATION AND NET OUTMIGRATION: 2000-2010, 2010-2020 AND 2040-2050

Rank	*Country or area*	*2000-2010*	*Country or area*	*2010-2020*	*Country or area*	*2040-2050*
			A. Highest number of net inmigration (thousands)			
1	United States of America	11 750	United States of America	11 000	United States of America	11 000
2	Afghanistan	3 016	Germany	2 110	Germany	2 110
3	Germany	2 110	Canada	1 675	Canada	1 800
4	Canada	1 575	United Kingdom	1 350	United Kingdom	1 350
5	United Kingdom	1 390	Australia	845	Australia	800
6	Australia	900	France	750	France	750
7	France	750	Italy	656	Italy	620
8	Spain	680	Spain	560	Spain	560
9	Italy	648	Japan	539	Japan	539
10	China, Hong Kong SAR	550	China, Hong Kong SAR	533	Russian Federation	500
11	Japan	539	Russian Federation	500	China, Hong Kong SAR	480
12	Somalia	522	Greece	300	Greece	300
13	Burundi	500	Netherlands	300	Netherlands	300
14	Russian Federation	500	Saudi Arabia	300	Saudi Arabia	300
15	Sierra Leone	429	Kuwait	200	Kuwait	200
16	Singapore	400	Singapore	175	Austria	140
17	Angola	368	Austria	140	Belgium	134
18	Eritrea	355	Belgium	134	South Africa	110
19	Israel	351	Israel	126	Singapore	100
20	Kuwait	350	Iraq	120	Sweden	100
21					Czech Republic	100
22					Denmark	100
23					Ireland	100
24					Norway	100
25					Portugal	100
			B. Highest number of net outmigration (thousands)			
1	China	-3 170	China	-3 044	China	-2 952
2	Mexico	-2 950	Mexico	-2 750	Mexico	-2 500
3	Pakistan	-2 937	India	-2 188	India	-2 200
4	India	-2 299	Philippines	-1 800	Philippines	-1 877
5	Iran (Islamic Republic of)	-1 818	Indonesia	-1 800	Indonesia	-1 800
7	Philippines	-1 800	Pakistan	-1 320	Pakistan	-1 320
6	Indonesia	-1 800	Ukraine	-963	Ukraine	-963
8	Kazakhstan	-1 543	Kazakhstan	-600	Bangladesh	-870
9	Ukraine	-991	Bangladesh	-600	Kazakhstan	-600
10	United Republic of Tanzania	-645	Turkey	-500	Turkey	-500
11	Bangladesh	-600	Colombia	-400	Sri Lanka	-319
12	Peru	-500	Sri Lanka	-319	Morocco	-300
13	Turkey	-500	Morocco	-300	Egypt	-300
14	Tajikistan	-474	Egypt	-300	Mali	-291
15	Guinea	-463	Mali	-291	Colombia	-289
16	Mali	-436	Brazil	-260	Brazil	-260
17	Georgia	-425	Peru	-245	Nepal	-236
20	Colombia	-400	Nepal	-236	Haiti	-210
19	Sri Lanka	-319	Haiti	-210	Algeria	-200

TABLE V.3 (*continued*)

Rank	*Country or area*	*2000-2010*	*Country or area*	*2010-2020*	*Country or area*	*2040-2050*
18	Ecuador	-300	Algeria	-200	Cuba	-200
19	Morocco	-300	Cuba	-200	Ecuador	-200
20	Egypt	-300	Ecuador	-200	Georgia	-200
21			Georgia	-200	Iran (Islamic Republic of)	-200
22			Iran (Islamic Republic of)	-200	Peru	-200
23			Viet Nam	-200	Viet Nam	-200
24			Uzbekistan	-200	Uzbekistan	-200
25			Yemen	-200	Yemen	-200

VI. THE DEMOGRAPHIC IMPACT OF HIV/AIDS

Since 1981, when the first cases of the acquired immunodeficiency syndrome (AIDS) were diagnosed, the world has been facing the deadliest epidemic in contemporary history. By the end of 2002, more than 65 million persons had been infected by HIV and about 42 million were still alive, 38.6 million adults and 3.2 million children. According to the Joint United Nations Programme on HIV/AIDS (UNAIDS), AIDS has become the fourth most important cause of death in the world and it is already the leading cause of death in sub-Saharan Africa (UNAIDS/WHO, 2001). The rapid spread of the disease has meant that in the most affected regions there is an escalating demand for care by those infected and a need to deal with the social and economic consequences of the high levels of morbidity and mortality associated with the disease.

The detrimental impact of the HIV/AIDS epidemic is more strongly felt in developing countries, where 93 per cent of those infected with HIV lived at the end of 2002. Sub-Saharan Africa, with more than 29 million persons living with HIV at that date, remains the region where the highest prevalence levels predominate. However, both the number of infected persons and that of highly affected countries are rising in Asia and Latin America and the Caribbean. It is estimated that by the end of 2002 Asia had more than 7 million persons infected with HIV and that an additional 1.9 million HIV-positive persons lived in Latin America and the Caribbean (UNAIDS/WHO, 2002).

Because many of the people infected with HIV remain healthy for long periods before showing overt signs of immunodeficiency, obtaining reliable data on the number of new infections as they occur is generally not possible. Therefore, most of the data available refer to the prevalence of HIV in specific sub-populations, that is, they reflect the proportion of persons already infected with HIV, but do not provide information on the time when infection occurred. In countries where prevalence levels are below 1 per cent, testing of a large population is necessary to measure prevalence accurately, an approach that is not cost effective, especially if a country's population is large and geographically dispersed. However, even when overall prevalence levels are low, HIV may be spreading rapidly among groups of persons engaging in high-risk behaviours, including injecting drug users or sex workers and their clients. HIV is already present among the high-risk groups of many societies where overall prevalence is still low, causing great uncertainty about the future course of the epidemic in these countries. Spread of the disease among the general population and the consequent rise of prevalence cannot be ruled out although the evidence available is still too weak to permit the identification of countries where a surge of the epidemic is most likely to occur next.

Given the uncertainty surrounding the future course of the epidemic in countries where it is still largely confined to high-risk groups, projections that take explicit account of the impact of HIV/AIDS are made only for countries where prevalence levels have already passed a certain threshold. For the *2002 Revision*, such a threshold is set at a prevalence of 1.9 per cent among persons aged 15-49 by the end of 2001. As in past *Revisions*, any country that was considered as AIDS-affected in previous *Revisions* is again included in the group of affected countries in the *2002 Revision* even if its HIV prevalence among persons aged 15-49 is estimated to be below 1.9 per cent in 2001. In addition, five countries are included because, although their prevalence levels are still very low (below 1 per cent), their large populations imply that they have very substantial numbers of persons already infected with HIV. These five countries are Brazil and India, which were already included in previous *Revisions*, and China, the Russian Federation, and the United States of America, which have been added to the list of AIDS-affected countries for the first time in the *2002 Revision*. In total, the populations of 53 countries were projected taking into account the impact of HIV/AIDS, up from the 45 countries considered in the *2000 Revision*. Since the early 1990s, when the Population Division began incorporating explicitly the effect of HIV/AIDS in projecting the populations of highly affected countries, the number of such countries has more than tripled, rising from the 16 considered in the *1992 Revision* to the 53 listed in annex table VI.1. Among the countries considered in the *2002 Revision*, 38 countries are in Africa, five in Asia, eight in Latin America and the Caribbean, one in Europe and one in Northern America.

A. Modelling the dynamics of the HIV/AIDS epidemic

The approach used to model the dynamics of the HIV/AIDS epidemic is that suggested by the UNAIDS Reference Group on Estimates, Modelling and Projections (2002). The first stage in modelling is to derive estimates of the yearly probability of being infected by HIV (annual incidence) from available estimates of HIV prevalence. In countries of sub-Saharan Africa these prevalence estimates are derived mainly from data on the proportion sero-positive among pregnant women attending antenatal clinics that belong to the system of sentinel surveillance sites in each country. Consequently, available estimates of prevalence refer to the HIV prevalence among pregnant women only. It has been shown, however, that prevalence levels among pregnant women aged 15-49 provide reasonable estimates of prevalence levels among all women in the same age group (Gregson and Zaba, 1998; Glynn et al, 2001; Gregson, Zaba and Hunger, 2002). There is scant information on how well prevalence levels among pregnant women represent those among men. Only recently have nationally representative surveys of HIV sero-prevalence begun to be taken in countries of sub-Saharan Africa and in depth analyses started of their results in comparison with the data obtained from antenatal clinics. In the absence of information, the models presented here assume that available estimates of prevalence among pregnant women aged 15-49 are adequate proxies of HIV prevalence among both all women and all men.

The model used to derive annual estimates of incidence from observed prevalence levels is based on three differential equations representing the dynamics of the epidemic over time (UNAIDS Reference Group on Estimates, Modelling and Projections, 2002). The model assumes that the total population of persons over 15, denoted by N, can be divided into three groups:

1. persons already infected by HIV at time t, denoted by $Y(t)$;

2. persons at risk of being infected by HIV at time t, that is, the susceptible population, denoted by $Z(t)$, and

3. persons who, at time t, are not at risk of being infected by HIV, denoted by $X(t)$.

The first differential equation indicates how the number of persons infected changes over time:

$$\frac{dY(t)}{dt} = \left[\frac{rY(t)}{N(t)} + \theta(t)\right] Z(t) - \int_0^t \left[\frac{rY(s)}{N(s)} + \theta(s)\right] Z(s) M(t-s) ds \qquad (1)$$

that is, the increase in the number infected depends on the interaction between the proportion already infected $[Y(t)/N(t)]$ and the susceptible population $Z(t)$. The parameter $\theta(t)$ is included to jump-start the epidemic. It is set to a positive value when the epidemic starts, and becomes zero thereafter. The parameter r represents the force of infection, that is, the probability that an interaction between an infected individual and a susceptible one results in the infection of the latter.

The integral in equation (1) represents the cumulative number of deaths among individuals infected by HIV since time 0, that is, the start of the epidemic. The function $M(t)$ is the instantaneous probability of dying at time t whether because of AIDS or because of other causes and is given by:

$$M(t) = \left(\mu + \frac{\alpha t^{\alpha-1}}{\beta^{\alpha}}\right) \exp\left[-\mu t - \left(\frac{t}{\beta}\right)^{\alpha}\right] \qquad (2)$$

That is, the probability of dying is modelled as a Weibull density function with shape parameter α and position parameter β. In equation (2), μ represents the force of mortality due to causes other than AIDS.

The second differential equation indicates how the susceptible population changes over time:

$$\frac{dZ(t)}{dt} = F\left(\frac{X(t)}{N(t)}\right)E(t) - \left[\mu + \frac{rY(t)}{N(t)} + \theta(t)\right]Z(t) \qquad (3)$$

where $E(t)$ represents the number of individuals entering the population aged 15 or over at time t. $E(t)$ is therefore the number of persons reaching exact age 15 at time t. $E(t)$ can be estimated as:

$$E(t) = l(15, t-15)\,b(t-15)\left[X(t-15) + Z(t-15) + (1-\nu)\,\xi\,Y(t-15)\right] \qquad (4)$$

where $l(15, t\text{-}15)$ is the probability of surviving from birth to age 15 among persons born at time t-15, $b(t\text{-}15)$ is the birth rate at time t-15, ν is the probability of HIV transmission from mother to child, and ξ is a factor reflecting the reduction of fertility among HIV positive women.

However, not all persons reaching age 15 are immediately susceptible to being infected with HIV. The fraction that becomes part of the susceptible population is a function of the proportion of the population that is not susceptible and is defined as:

$$F\left(\frac{X(t)}{N(t)}\right) = \frac{\Omega\left(\frac{X(t)}{N(t)}\right)}{\left(\Omega\left(\frac{X(t)}{N(t)}\right) - 1 + \frac{1}{F\left(\frac{X(0)}{N(0)}\right)}\right)} \qquad (5)$$

where Ω is a function defined by:

$$\Omega\left(\frac{X(t)}{N(t)}\right) = \exp\left[\varphi\left[\frac{X(t)}{N(t)} - 1 + F\left(\frac{X(0)}{N(0)}\right)\right]\right] \qquad (6)$$

and $F[X(0)/N(0)]$ is the fraction of individuals who entered the susceptible group when they turned 15 just as the HIV epidemic started and φ is a parameter modulating the recruitment of persons into the susceptible group. In addition, in equation *(3)*, μ represents the mortality rate among the population not infected with HIV and the rest of the expression in parenthesis represents the decrement of $Z(t)$ caused by the transfer of persons from the susceptible group to the group of those infected with HIV.

The third equation shows how the non-susceptible population changes over time:

$$\frac{dX(t)}{dt} = \left(1 - F\left(\frac{X(t)}{N(t)}\right)\right)E(t) - \mu\,X(t) \qquad (7)$$

Together equations (1), (3) and (7) constitute a system of differential equations that can be solved numerically by using, for instance, the Runge-Kutta method, provided values of all relevant parameters are known. Population-based estimates of population size at the start of the epidemic, births and mortality risks over time are available. In addition, assumptions are made about the probabilities of dying of AIDS among those infected, about the probability of mother-to-child transmission and about the extent to which the fertility of HIV-positive women is reduced. Then, assuming an initial value of $\theta(t)$ as well as a year when the epidemic began, it is possible to estimate via numerical approximation methods the values of r, $F[X(0)/N(0)]$ and φ that minimize the distance between the HIV prevalence generated by the model and the HIV prevalence estimated on the basis of data from antenatal clinics at various points in time. More specifically, a non-linear iterative optimization procedure is used to obtain estimates of the parameters r, $F[X(0)/N(0)]$ and φ, given an initial value of $\theta(0)$ and the year of start of the epidemic.

Once the values of all parameters are obtained, equations (1) to (7) can be used to estimate the number of persons living with HIV, the number in the susceptible group and the number who are not susceptible, as well as the number of newly infected individuals for each year t ranging from the start of the epidemic to 2001 (the most recent year with data on prevalence available). Also calculated is the incidence rate for the total population at risk. In carrying out these calculations, the Population Division's procedure makes allowance for changes in the demographic dynamics of the population. That is, the effects of changing mortality and fertility rates are properly reflected in the application of the epidemiological model described above. However, in order to estimate the effect of the HIV/AIDS epidemic on mortality and population dynamics, it is necessary to derive estimates of the infected population by age and sex. The procedures followed in such derivation are described in the next section.

The estimation of the demographic impact of HIV/AIDS is carried out in several steps. Essentially, the estimates of annual HIV incidence derived from the epidemiological model with all sexes and ages combined are converted into age and sex-specific estimates of newly infected individuals and the population that was initially free from the epidemic is projected over single-year intervals using a multi-state approach that tracks the transitions of individuals from susceptibility to infection to AIDS and to death, as well as the deaths of the uninfected population. Populations are projected by single years of age and the infected population is further classified by duration of infection in single years. The exact steps followed and the assumptions made in recreating the dynamics of a population affected by the HIV/AIDS epidemic are described in detail below.

Step 1: *Derivation of the number of new infections by sex*. As noted above the model used to derive the parameters r, $F[X(0)/N(0)]$ and φ does not take into account the age or sex of the population infected. To derive estimates of the impact of HIV/AIDS by age and sex, it is first necessary to distribute by sex the yearly number of newly infected individuals, as yielded by the general epidemiological model described above. Although data on the distribution by sex of newly infected individuals are rare, there is some evidence suggesting that when HIV/AIDS is spread mainly by heterosexual transmission, the proportion of males among the newly infected is high at first but declines quite rapidly in the years following the start of the epidemic. On the basis of this observation and following the practice of UNAIDS, the proportion of males among the newly infected is assumed to decline from 80 per cent or so at the start of the epidemic to 45 per cent after a few years and to remain constant at that level for an extended period. However, in regions or countries where HIV/AIDS is not spread primarily by heterosexual contact (e.g. homosexual contact, intravenous drug use, etc.) sex patterns of newly infected individuals differ, with higher proportions being attributed to men. Under these assumptions, the annual number of newly infected individuals per year is distributed by sex.

Step 2: *Derivation of the number of newly infected men and women by age*. Once estimates of the newly infected by sex are available, they are distributed by single-year of age according to model age distributions derived from empirical data fitted using a Weibull distribution. Five different age distributions of the newly infected were derived for each sex but the set used for the purposes of this paper, named "standard", has a mean age at infection of 31.2 years for males and 28 years for females. Figure VI.1 shows the density functions by age for males and females.

Step 3: *Estimation of the number of deaths caused by AIDS among HIV positive persons*. To estimate the number of deaths due to AIDS by age and sex, the infected population is projected over time using a multi-state approach that takes account of the competing risks of moving from being uninfected to being infected (HIV-positive) and from being HIV-positive to developing full blown AIDS versus the probability of dying of a cause other than AIDS. The probability schedules used to reflect the chances of developing full blown AIDS after x years of infection (the incubation period) are assumed to follow a Weibull distribution. Different schedules were used for each sex, with a median incubation period of about 9.3 years for both sexes combined, a slightly longer median incubation period for females (9.6 years) and a shorter one for males (9 years). The schedules are shown in figure VI.2. The probability of progressing from HIV infection to AIDS was modelled as a function of the duration of infection and no allowance was made for systematic differences in the incubation period related to age at infection.

Figure VI.1. Age distribution of new infections for males and females

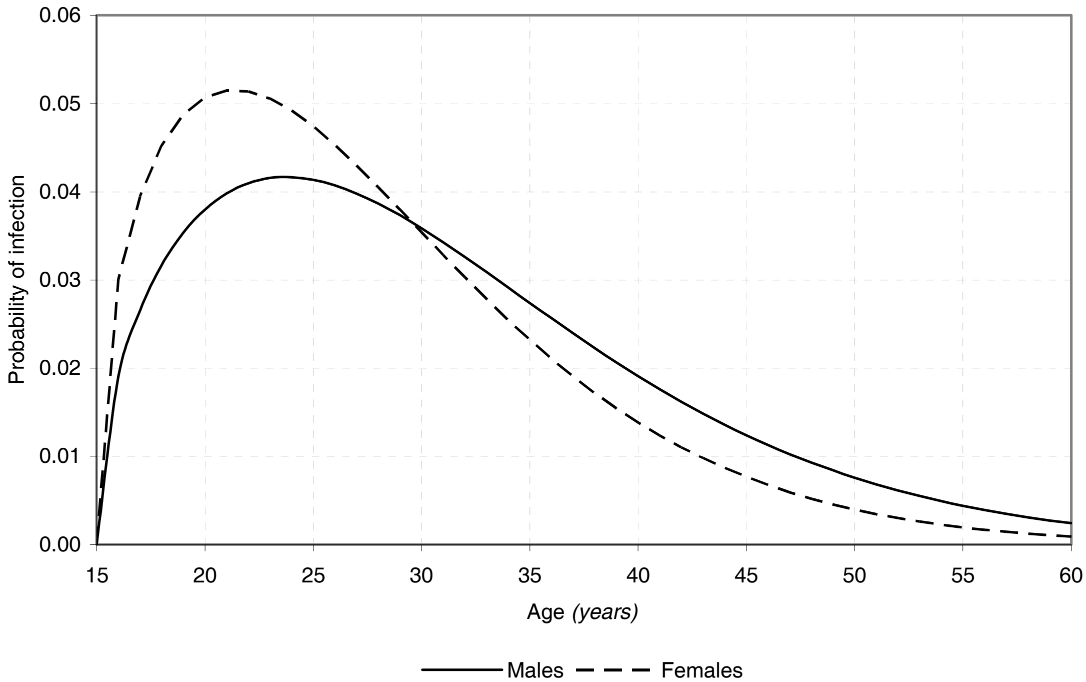
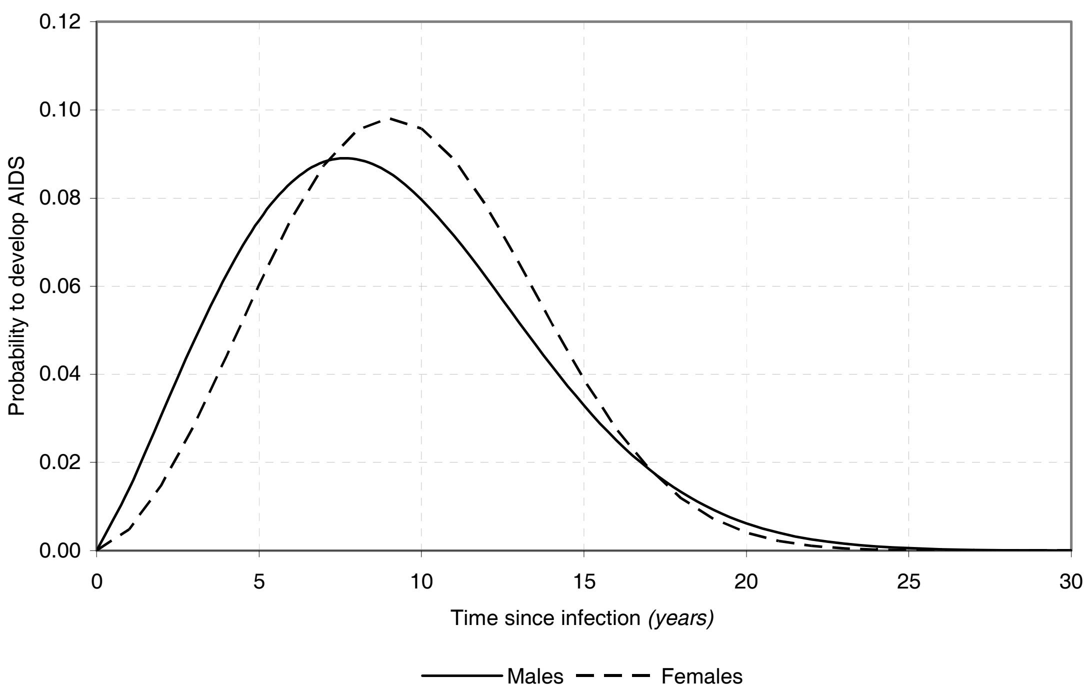


Figure VI.2. Annual probability of transition from HIV infection to AIDS



Competing mortality risks for causes other than AIDS were estimated on the basis of mortality estimates for the whole population. It was assumed that among HIV positive persons, the risk of dying of a cause other than AIDS was independent from the risk of dying of AIDS.

Once individuals develop full blown AIDS, their probability of dying is modelled using a Weibull distribution with a mean duration to death of one year.

Step 4: *Calculation of the number of children infected by HIV/AIDS*. A by-product of the calculations described above is the population living with HIV or AIDS classified by sex, age and duration of infection. To estimate the number of children that can potentially become infected by their mothers, the numbers of HIV-positive women in each age group are multiplied by the age-specific fertility rates estimated for the whole population but reduced by a factor $\xi = 0.8$ to take into account the lower probability of conception among HIV-positive women. Because most HIV-positive children acquire the disease from their infected mothers at or near the time of birth, the number of HIV-positive children is obtained by assuming a fixed rate of transmission of HIV from mother to child ($\nu = 0.35$) and multiplying it by the number of children born to HIV-positive women. Such an approach produces the number of children who become HIV positive at birth or soon thereafter during each year. In addition, the age-specific fertility rates applied to non-infected women are increased in such a way that the overall fertility rates of the population as a whole (both infected and not infected women) match those estimated from available data.

Step 5: *Calculation of the number of AIDS deaths among children*. In children the length of infection is the same as their age. Projection of the number of surviving HIV-positive children is made by modelling the probability that infected children have of surviving HIV infection up to age *x, s(x),* as a double Weibull function:

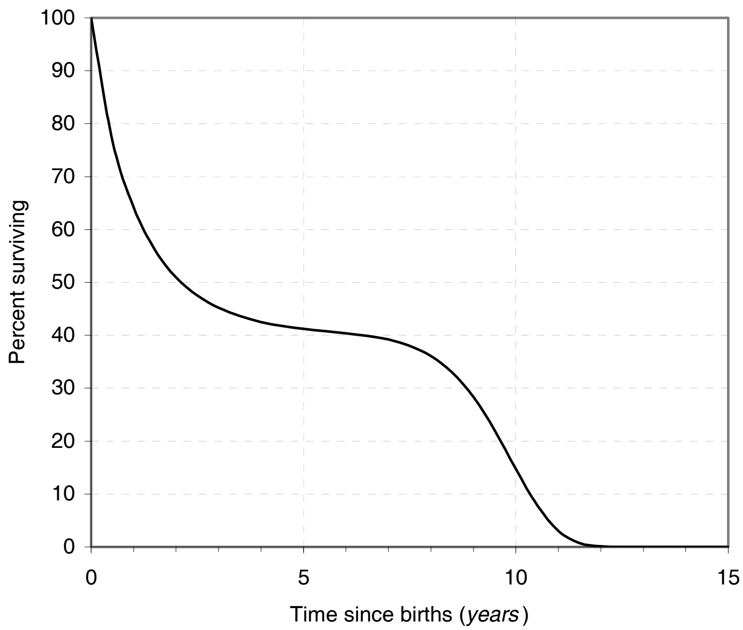
$$s(x) = 1 - \left[p(1-\exp(-(\alpha x)^{\eta})) + (1-p)(1-\exp(-(\beta x)^{\iota})) \right] \tag{8}$$

where $p = 0.6$, $\alpha = 0.9$, $\eta = 0.9$, $\beta = 0.1$ and $\iota = 10$. Figure VI.3 shows the survival function for infected children. This function implies a median survival time for infected children of less than 2 years; that is, about half of all infected children will not survive to their second birthday. Allowance is also made for the probability of surviving from other causes of death by multiplying $s(x)$ by the normal $l(x)$ function of the life table for uninfected children.

Step 6: *Projecting the population that is not infected by HIV*. Steps (1) to (5) describe how the HIV-positive population is projected from the start of the epidemic onward. In fact, the full multi-state projection procedure used projects also the non-infected population allowing for two possible and independent ways of leaving that group: (*a*) by dying from non-AIDS causes, or (*b*) by becoming infected with HIV (i.e., the yearly incidence). In addition, the age-specific fertility rates applied to non-infected women are increased in such a way that the overall fertility rates of the population as a whole (both infected and not infected women) match those estimated from available data.

Step 7: *Calculation of revised life-tables that reflect the impact of HIV/AIDS*. The results of the multi-state projections permit the calculation of life tables that reflect both the effect of general mortality and the added impact of HIV/AIDS in a manner consistent with what is known about HIV prevalence in each country. The life tables representing average mortality for five-year periods are then used to carry out the "normal" population projections over five-year periods prepared by the Population Division for countries affected by the epidemic. That is, the mortality projection procedure ultimately used is the same for both countries that are not yet affected in a significant way by HIV/AIDS and those affected by the epidemic. This approach allows it to "splice" easily population projections for periods before the start of the

Figure VI.3. Survival distributions for children



epidemic with those after its start. It also allows it to create "NO-AIDS" versions of the population projections that represent estimated population dynamics in the absence of HIV/AIDS.

B. THE PAST AND FUTURE EVOLUTION OF THE HIV EPIDEMIC

The number of persons infected with HIV/AIDS is not evenly distributed among the major areas of the world. Seventy per cent of HIV infected persons in 2001 were located in the countries of sub-Saharan Africa, while this region was home to only 11 per cent of the world's population in that year. Annex table VI.2 lists the affected countries according to the level of HIV prevalence among adults aged 15-49 in 2001. The levels of prevalence presented in this table were taken from the United Nations Population Division's application of the HIV/AIDS estimation and projection model. For some countries, the prevalence levels presented in annex table VI.2 differ slightly from the UNAIDS estimates listed in annex table VI.1 because the former result from fitting the complete path of the epidemic.

The seven most affected countries, those with more than 20 per cent of the population aged 15-49 infected by 2001, are all located in Eastern Africa (Zambia and Zimbabwe) and Southern Africa (Botswana, Lesotho, Namibia, South Africa and Swaziland). These seven countries alone, with a total population of 74 million in 2001, accounted for an estimated 8.7 million HIV-infected persons aged 15-49 in 2001 or 23 per cent of the world total. An additional five countries had prevalence levels between 10 and 20 per cent in 2001. These five countries, located in Eastern Africa (Kenya, Malawi, and Mozambique) and Middle Africa (Cameroon and Central African Republic), had a total population of 80 million and accounted for 5.2 million adult infections in 2001, 14 per cent of the total number of infected adults in the world. A larger group of countries, fourteen, had prevalence levels ranging from 5 to 10 per cent. With the exception of Haiti, all those countries are located in sub-Saharan Africa. They were home to 301 million people in 2001, 9.3 million of whom were adults infected with HIV and accounted for 25 per cent of the world total. The group of twenty-two countries with prevalence levels ranging between

1 and 5 per cent is spread across many parts of Africa, Asia, and Latin America and the Caribbean. Despite the large number of countries in this group and their large overall population (310 million in 2001), they accounted for a relatively small percentage of the world's HIV-infected adults: 4.5 million or 12 per cent. In contrast, the five countries with prevalence levels lower than 1 per cent, whose large populations justified their inclusion as AIDS-affected countries in the *2002 Revision,* accounted for nearly half of the world population (2.9 billion in 2001) and had 6.8 million infected adults in 2001 or 18 per cent of the world total. India alone was estimated to have 3.8 million infected adults in 2001, a number second only to that estimated for South Africa.

Annex table VI.2 also displays estimates of the year in which widespread transmission of HIV began in each country. It must be noted that the disease could have been present at a very low level in a population for many years before the onset of widespread transmission, often affecting mostly persons in certain high-risk groups. There is considerable uncertainty surrounding the estimated time of widespread transmission. The estimates presented in annex table VI.2 should be taken as indicative, being based on what is known about the history of the epidemic and being consistent with a path for the evolution of HIV incidence that produces prevalence levels close to those observed in the late 1990s and in 2001. Because incidence itself is not measurable (persons infected do not know themselves when they acquired the infection) and many factors need to be taken into account in order to estimate prevalence levels on the basis of incidence estimates, different ways of modelling such factors can lead to different paths for the evolution of incidence over time and still be consistent with observed prevalence levels. For that reason, the new procedures used to model the AIDS epidemic in the *2002 Revision* produce different estimates of the time of onset of widespread transmission from those presented in the *2000 Revision* (United Nations, 2002).

According to annex table VI.2, the epidemic first became widespread in the Democratic Republic of the Congo (around 1970) and in Burundi (around 1973). In all other countries, widespread transmission is estimated to have occurred after 1977. In Gabon and Rwanda it began in the late 1970s. For another 25 countries, widespread transmission is estimated to have started in 1980. These include 16 countries in Africa (located in Eastern, Middle and Western Africa), eight countries in the Americas (including the United States of America) and one in Asia (Thailand). Between 1981 and 1985, widespread transmission started in another 12 countries of Africa and in Brazil. The late 1980s saw the beginning of widespread transmission in countries of Southern Africa, and in Cambodia, India and Myanmar. Widespread transmission of the epidemic in the Russian Federation began in 1990 and in China in 1996. That is, with the exception of the countries in Southern Africa, most of the highly affected countries of Africa began to experience widespread transmission of HIV before 1986, as did most of those in the Americas. The epidemics in Southern Africa, the Russian Federation and most of the affected countries of Asia started in the late 1980s or even in the 1990s.

According to current estimates, the average time elapsed between the year of widespread transmission and the year of peak incidence is 13.8 years, but there is wide variation among countries. For example, in Uganda and Lesotho it is estimated that incidence reached its peak just 6 years after the start of widespread transmission. However, Uganda's incidence peaked at 3.8 per cent per year while Lesotho's rocketed to a level of 8.3 per cent per year (annex table VI.3), meaning that the uninfected adult population aged 15 to 49 of Lesotho had one chance in twelve of getting infected during the year of peak incidence. At the opposite end of the spectrum, in seven countries—Sierra Leone, Equatorial Guinea, Dominican Republic, Trinidad and Tobago, Honduras, India, and the United States—the time span between the start of the epidemic and peak incidence is expected to be 20 years or longer. In the United States, for instance, peak incidence is projected to occur in 2011, 31 years after the start of widespread transmission, but it must be noted that HIV incidence declined in the United States during the early 1990s before resuming an upward trend in the late 1990s.

In estimating the path of HIV incidence over time, the dynamics of the HIV/AIDS epidemic are assumed to remain constant until 2010 in terms of the four parameters that determine the model fitted to the time series of prevalence levels estimated by UNAIDS. Constancy of those parameters can be interpreted to mean constancy of the behavioural and epidemiological factors governing the transmission of the disease. After 2010, projections of the annual incidence of HIV infection assume that the rate of recruitment of persons in the group susceptible to infection will decline steadily for the next 40 years and that the probability of transmission of HIV per contact will also decline over time. Because for most countries both incidence and prevalence reach a maximum value before 2010 (see annex table VI.3), both incidence and prevalence would have been declining by 2010 even if the model's parameters had remained constant. The use of declining parameter values starting in 2010 accelerates further the decline of both incidence and prevalence levels. Even so, by 2050 prevalence levels are still substantial in the most highly affected countries. In Botswana, for instance, over one fifth of the adult population is projected to be HIV positive in 2050 (that is, prevalence is projected to decline from about 37 per cent in 2001 to 21 per cent in 2050). Similarly, in most of the affected countries, prevalence is projected to stay close to its highest level for a longer period and to decline more slowly after 2010 than it did according to the projections presented in the *2000 Revision*. As a result, for almost all affected countries, the projected HIV prevalence in 2050 is higher in the *2002 Revision* than projected in the *2000 Revision*.

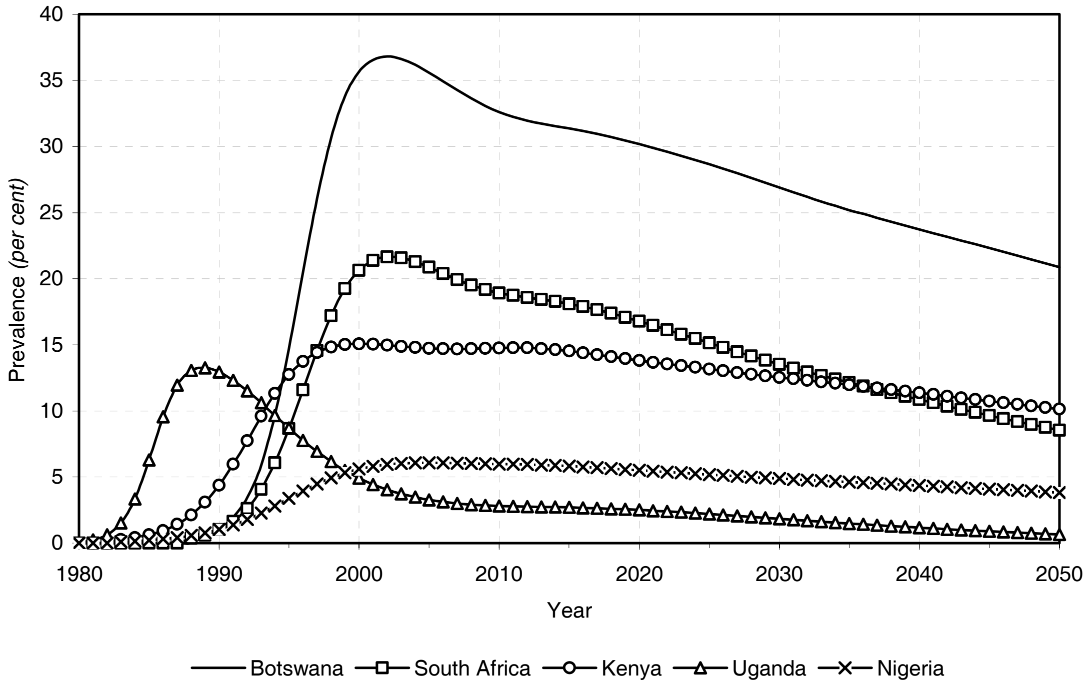
Annex table VI.3 presents a few indicators of the dynamics of the epidemic in each affected country according to the estimates and projections of the *2002 Revision*. Incidence and prevalence levels are presented for the year 2001, for the year in which each attains a maximum (the peak values of incidence and prevalence) and in 2050. With the exception of Equatorial Guinea, current estimates indicate that incidence has already peaked in all the HIV-affected countries in sub-Saharan Africa. However, even after incidence begins to decline, prevalence continues to grow, mainly because HIV-positive persons survive several years after infection. Thus, prevalence reaches a maximum between 3 and 10 years after incidence peaks and the year of peak prevalence is more recent or has yet to occur, as in many countries of sub-Saharan Africa. Among the 15 AIDS-affected countries outside of Africa, seven have yet to reach their peak incidence, and only in four—Bahamas, Brazil, Haiti and Thailand—is prevalence estimated to have already reached a maximum.

To conclude this review of estimates and projections of HIV prevalence, figure VI.4 presents the evolution of annual prevalence levels in the population aged 15-49 for selected HIV-affected countries. Great variation among countries is evident in both the past and future course of the epidemic, and crossovers of prevalence between countries have occurred in the past and are projected to occur in the future. Kenya, for instance, had higher HIV prevalence than Botswana and South Africa until the mid-1990s but, despite the later start of the epidemic in Southern Africa, its rapid spread has driven prevalence in those countries far above that in Kenya. Uganda, which experienced an early and rapid start to the epidemic, has seen a dramatic decline in prevalence due to a concerted national campaign to combat the spread of the disease. The early and swift decline of Uganda's prevalence can be contrasted with the slower and protracted reduction projected for other African countries. Because of the many uncertainties that surround the future course of the epidemic, the projected levels of incidence and the resulting levels of prevalence can at best be taken as indicative of plausible outcomes provided that steps taken to control the epidemic prove successful in the long run.

C. Demographic impact of HIV/AIDS

The impact of AIDS is assessed for the 53 countries listed in annex table VI.1 by considering the changes in demographic indicators brought about by the disease. The results of the medium variant of the *2002 Revision*, which explicitly take into account the effect of AIDS, are compared to the results of a set of projections carried out assuming that AIDS did not exist. This second set of projections is referred to as the No-AIDS scenario. Three sets of demographic indicators are examined. The first set gives an overview of population

Figure VI.4. Estimated and projected HIV prevalence among persons aged 15-49, selected countries, 1980-2050



size and growth. The second set consists of indicators of general mortality, including the crude death rate, life expectancy, and the number of deaths, and the third set consists of indicators of infant and child mortality. The indicators are examined in two ways: first at the regional level, that is, with countries grouped by world region, and second, with countries grouped according to their level of adult HIV prevalence in 2001. After this analysis, profiles of three highly affected countries are presented.

1. Population size and growth

The rising numbers of deaths due to AIDS are expected to result in a reduction of population growth and, in some instances, even in a decrease of population size. AIDS affects population growth through two mechanisms: (*1*) an increase in the number of deaths, and (*2*) a reduction in the number of births because infected girls and women die before or during the reproductive period, reducing the number of potential mothers.

Annex table VI.4 presents the estimated and projected population size and average annual growth rate for regional groupings of AIDS-affected countries, according to the medium variant and the No-AIDS scenario. The total population of the 53 affected countries in 2000 was 3,644 million, just 23 million less than it would have been in the absence of AIDS. By 2050, the reduction of population size due to AIDS is projected to increase to 479 million or 8 per cent lower than the population projected assuming No-AIDS. The majority of this difference is attributable to Africa, whose population is projected to be 320 million (or 19 per cent) less in 2050 than it would have been in the absence of HIV/AIDS. The second largest reduction is projected to occur in the 5 affected countries of Asia, whose population is expected to be 137 million less in 2050 than in would have been in the absence of AIDS. However, in relative terms, this reduction amounts to just over 4 per cent of the 2050 population of those Asian countries.

The impact of AIDS on the rate of population growth for the 53 affected countries is also projected to be significant. During 2000-2025, AIDS is likely to reduce the average annual rate of growth of the countries involved by nearly 15 per cent, from 1.18 per cent per year to 1.01 per cent annually. During the next twenty-five years, the relative impact of AIDS on the population growth rate is expected to increase as fertility continues to drop in all countries. Thus, instead of growing at a rate of 0.62 per cent per year, the 53 affected countries will likely grow at a rate of 0.47 per cent annually, a reduction of nearly 25 per cent. At the regional level, the largest relative reductions in the growth rate are projected to occur in the affected countries of Africa and Asia. In the affected countries of Africa as a whole, average annual growth is expected to be cut by 20 per cent and 15 per cent, respectively, during 2000-2025 and 2025-2050. In the five countries of Asia, the reduction of the growth rate is expected to be about 9 per cent in 2000-2025 when the No-AIDS population would have been growing at a rate of 0.9 per cent per year, but it will likely rise to a 34 per cent reduction in 2025-2050 when the No-AIDS population would have been growing at a low 0.26 per cent per year. That is, even though HIV prevalence is projected to decline significantly during 2010-2050, the relative impact of the disease on population growth will become more accentuated over time as continued fertility reductions lead to lower rates of natural increase in the affected countries.

The comparisons made above at the regional level become more marked when countries are grouped according to their level of HIV prevalence in 2001 (see annex table VI.5). In the seven most affected countries, whose adult HIV prevalence in 2001 was above 20 per cent, AIDS is projected to bring population growth almost to a halt. Thus, the population of those seven countries is projected to increase by just 4 million people between 2000 and 2050 or less than 1 per cent. In the absence of AIDS, their overall population would have nearly doubled. While the average annual growth rate in this group of countries remains above zero during 2000-2050, in fact their overall population declines over the 2020-2030 decade (data not shown).

Significant relative reductions in the average annual rate of growth are also noticeable among the group of countries whose HIV prevalence in 2001 ranged from 10 to 20 per cent. The overall population of those countries, which would have more than doubled between 2000 and 2050 to attain 195 million, is expected to be instead 133 million or 62 million less than without AIDS. In addition, their population growth rate is projected to be about 40 per cent lower with AIDS than without.

The population reductions projected for other groups of countries are less striking, especially in relative terms. However, it bears noting that whereas the groups of countries with an adult HIV prevalence of 10 per cent or higher account for 28 per cent of the overall population reduction associated with HIV/AIDS, those with prevalence levels of less than one per cent account for 30 per cent of the overall reduction and those with levels ranging from 5 to 10 per cent account for another 29 per cent. Furthermore, among the very populous affected countries that still have very low HIV prevalence, the impact of AIDS in reducing the population growth rate is striking after 2025: during 2025-2050 the population of that group of countries is projected to grow 30 per cent less rapidly than it would in the absence of AIDS.

To conclude, the impact of AIDS in reducing population size is due both to excess deaths and to a deficit of births. In fact, 62 per cent of the 479 million reduction of the population in 2050 is due to “excess deaths”. The other 38 per cent is accounted for by “missing births,” that is, births that will not occur because HIV-infected women are projected to die before the end of their reproductive life. The share of the population deficit attributable to missing births grows steadily over the course of the projection period (figure VI.5).

2. Population structure

The excess and premature mortality caused by AIDS has a major impact not only on population size but also on the age structure of an affected population. The most striking impact of the disease can be ascertained by focusing on the case of the seven most affected countries. In 2000, as the age pyramid shown in figure VI.6 illustrates, the differences between the estimates reflecting the impact of AIDS and the No-AIDS scenario is already noticeable, particularly among children under 10 and adults between the ages of 25 and 54. And the differences by age are expected to become more accentuated in the future. By 2025, as figure VI.7 shows, the impact of the disease is

Figure VI.5. Cumulative difference in total population size between medium variant and the No-AIDS scenario attributable to excess deaths and missing births: 2000-2050

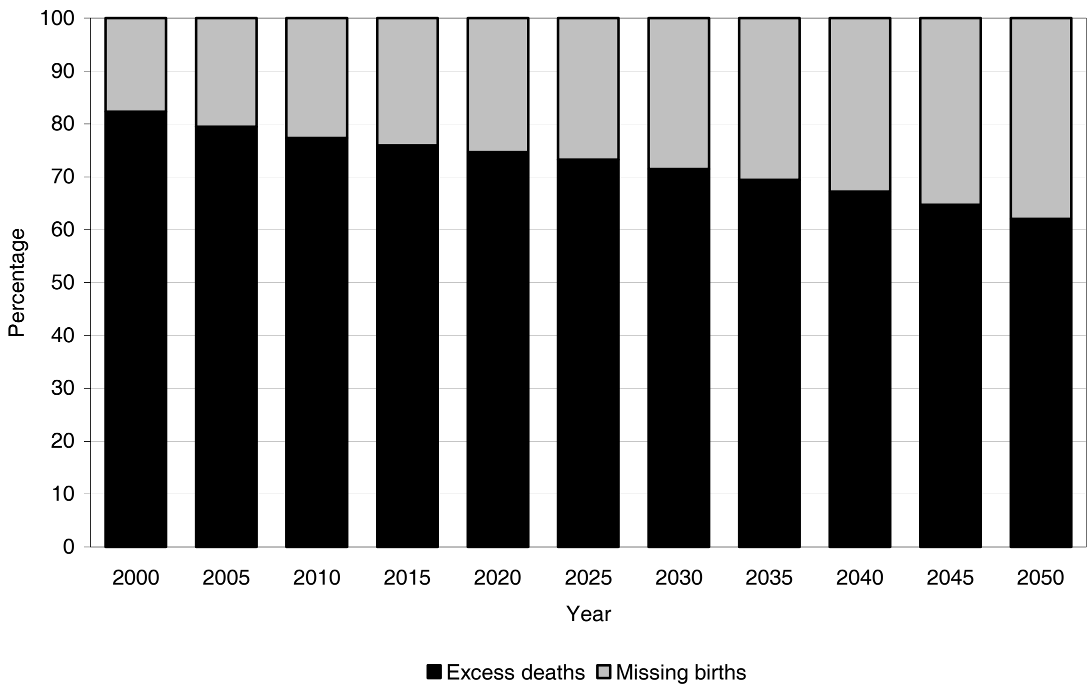
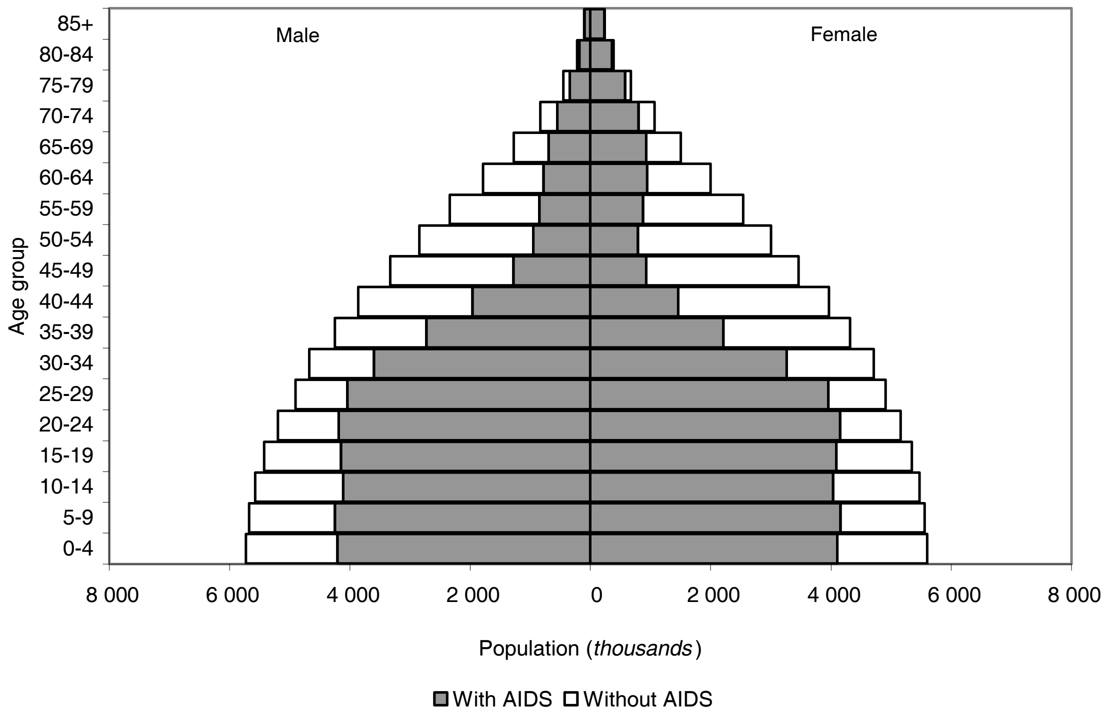


Figure VI.6. Population in the medium variant and in the No-AIDS scenario, by sex and age group, 7 most affected countries: 2000

Figure VI.7. Population in the medium variant and in the No-AIDS scenario, by sex and age group, 7 most affected countries: 2025



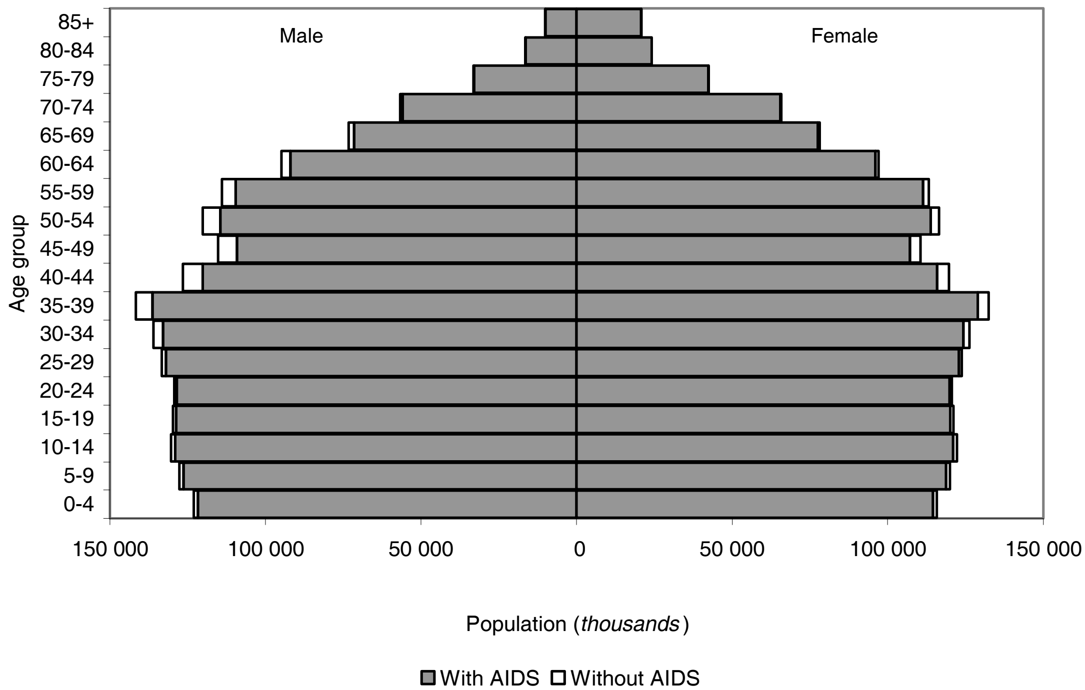
dramatic at all ages, with age groups 35-65 being particularly hollowed out by the premature deaths caused by AIDS. Similar effects, but less striking, are noticeable among other groups of countries with lower prevalence levels of the disease.

In the 5 populous countries where HIV prevalence is currently below 1 per cent, the impact on the age and sex structure of the population will be quite small despite the large number of AIDS deaths that these countries will experience. Figure VI.8 shows the projected age structure in 2025 of those five countries combined. The effect of mortality on the age structure is noticeable among adults, but the impact on the number of births and child mortality will be small.

3. General mortality

Since there is as yet no cure for AIDS and virtually everyone who is infected by HIV eventually dies of the disease, the most immediate effect of the epidemic is to increase mortality. Even in developed countries, where various means of treatment can prolong the lives of those infected by HIV, AIDS is still contributing to raise mortality rates above the levels they would have had in the absence of the disease. In most developing countries, particularly those in sub-Saharan Africa, the drug therapy that can delay the onset of the life-threatening symptoms of AIDS is still largely inaccessible. Consequently, as annex table VI.6 indicates, in 2000-2005 the 38 affected countries in sub-Saharan Africa are expected to experience 14.8 million more deaths than they would have in the absence of AIDS. Among all 53 affected countries, the total number of excess deaths during that period is expected to amount to 19.8 million, implying that the countries of sub-Saharan Africa will account for 75 per cent of the excess deaths brought about by the epidemic in all the affected countries during 2000-2005. A further 3.5 million excess deaths will occur in Asia, with India accounting for most of them. In Latin American and the Caribbean, the number of excess deaths is lower, amounting to 0.7 million, and in the two more developed countries, excess deaths are expected to total 0.8 million.

Figure VI.8. Population in the medium variant and in the No-AIDS scenario, by sex and age group, countries with 2001 prevalence lower than 1 per cent: 2025



Because HIV-infected adults have a median survival time of about 10 years after contracting the infection, the maximum number of excess deaths will occur after the maximum prevalence is reached. In all regions except Asia, the excess number of deaths will continue rising until 2015-2020 (not shown). In Asia, the peak is expected to occur five years later, in 2020-2025. In the affected countries of sub-Saharan Africa, excess deaths are projected to account for over 40 per cent of all deaths occurring between 2010 and 2025. Even by 2045-2050, sub-Saharan Africa will still experience 13 per cent more deaths than it would have in the absence of AIDS. In all other regions, the proportion of excess deaths expected in 2045-2050 is very low (below 3 per cent), partly because in the No-AIDS scenario the number of deaths increases to higher levels than in the projection incorporating the effect of AIDS. That is, in the absence of AIDS, there would be more people and more of them would survive longer. Therefore, if the No-AIDS scenario were extended long enough, at some point the number of deaths it produces would surpass those in the AIDS scenario, even if prevalence levels remained significant.

Comparisons can also be made in terms of the crude death rate (CDR), a general indicator of mortality. However, because the CDR is influenced by the age structure of the population, it is not strictly comparable between countries. In conditions of improving mortality the CDR will decline, but when improving mortality is accompanied by declining fertility, the age structure of the population shifts to older ages and eventually the CDR will rise as the elderly, who have the highest death rates, make up a rising proportion of the population. Consequently, examination of the effect of AIDS on the CDR will be confounded by the differing age structures of populations in different regions. For all 53 affected countries, the CDR would be expected to decline until 2015-2020 and then gradually rise even in the absence of AIDS. Owing to the impact of AIDS, the increase in the CDR is projected to occur earlier, in 2000-2005. In the affected countries of Africa, the No-AIDS scenario projects a decline in the CDR throughout the projection horizon. With AIDS, the affected countries of Africa experienced an outright increase in the CDR from 1990-1995 to 2000-2005, but a decline is expected to resume in 2005-2010. In the other three regional groups of affected countries, an increase in the CDR is expected even in the No-AIDS scenario due to population aging, but AIDS will cause the CDR to increase earlier.

Due to the extremely high number of excess deaths in sub-Saharan Africa, life expectancy in the affected African countries as a whole is projected to fall to 45.3 years in 2000-2005. The widest difference in life expectancy between the projection with AIDS and the No-AIDS scenario is projected for 2010-2015, when life expectancy in the affected countries of Africa will be 11.3 years or 19 per cent lower than without AIDS. The impact of AIDS on life expectancy in the affected countries of Africa remains substantial during the rest of the projection period. In 2045-2050, AIDS is still projected to produce a deficit of 7.8 years of life expectancy in that group of countries.

The effect on life expectancy in other regions is projected to be milder. In Asia, the reduction of life expectancy because of AIDS is expected to grow from 1.1 years in 2000-2005 until it reaches a maximum of 3.3 years in 2025-2030. In Latin America and the Caribbean, the largest deficit in life expectancy, 1.9 years, is projected to occur in 2015-2020. In the two more developed countries, the effect on life expectancy will peak at 2.3 years in 2015-2020.

Differences in all the mortality indicators become more marked when the groups of countries considered are those most highly affected by the epidemic (annex table VI.7). In the seven countries with adult HIV prevalence of 20 per cent or more in 2001, the impact of AIDS on mortality is staggering. In 2000-2005, these countries are expected to experience 155 per cent more deaths and a crude death rate that is 175 per cent higher than those projected in the absence of AIDS. Life expectancy in this period is expected to be 22.4 years, or 35 per cent, lower than without AIDS. And the detrimental impact of the disease is projected to rise further in future periods. By 2010-2015, life expectancy in the seven most affected countries will be 29.4 years lower, and the crude death rate 274 per cent higher, than in the No-AIDS scenario. Given that the reduction of HIV prevalence is projected to be gradual, even by 2045-2050 those seven countries are projected to have still a crude death rate that will be 112 per cent higher and a life expectancy expected to be 22.4 years lower than in the No-AIDS scenario. The number of deaths in 2045-2050 is projected to be 11 per cent lower than without AIDS. As discussed above, the relative impact of AIDS on the crude death rate and life expectancy is larger than on total deaths because by 2045-2050 both the population and the number of aged persons is larger in the No-AIDS scenario than in the projections that take account of the impact of AIDS.

In the groups of countries with HIV prevalence lower than 20 per cent, AIDS still has a major impact on general mortality. For example, in the group of countries with adult HIV prevalence ranging from 10 to 20 per cent in 2001, the CDR in 2010-2015 is projected to be more than double and life expectancy is expected to be 17.2 years lower than in the No-AIDS scenario. Even countries with HIV prevalence below 1 per cent will have a life expectancy in 2020-2025 that is 3 years below that projected in the absence of AIDS, and the number of deaths in that period will be 12.9 per cent higher it would have been without AIDS.

The impact of AIDS on mortality differs by sex, as shown in annex table VI.8. For the 53 affected countries as a whole, males are projected to experience 6 million more excess deaths than females over the period 2000-2020, but the percentage increase over the No-AIDS scenario will be higher for females (16.9 per cent) than for males (16.4 per cent). However, the similarity of the impact by sex at the aggregate level masks considerable variation by region. In the affected countries of Africa, females are expected to experience 7 million more excess deaths than males, while in the affected countries of Asia, AIDS deaths to males will likely exceed those to females by 10 million. In the affected countries of Latin America and the Caribbean, males are expected to experience a higher number of excess deaths than females, but in relative terms females are expected to experience 10.2 per cent more deaths than in the No-AIDS scenario, whereas for males the equivalent percentage is 9.9 per cent. In the two affected countries of the developed world (the Russian Federation and the United States) the number of excess deaths among males is expected to be more than twice as high as that for females. The differing impact by region is due to different assumptions about the sex ratio of transmission over the course of the epidemic which reflects current patterns in the relative susceptibility to infection by sex.

Because AIDS affects mostly persons in the reproductive ages, it has a very noticeable impact on the age distribution of deaths, raising those among adults aged 25-49 and reducing the number of deaths at advanced ages (in general, 65 and over) because less people survive that long. A comparison of the deaths expected during 2000-2020 in the projections that incorporate the effect of AIDS and those in the No-AIDS scenario by age shows clearly the pattern described (annex table VI.9). In the 53 affected countries taken together, the projections with AIDS produce 43 million excess deaths among those aged 25-34 and another 45 million among those aged 35-49. There is also some excess mortality among younger age groups (16 million deaths under age 15 and nearly 5 million among those aged 15-24) and among those aged 50-64 (7 million), but the bulk of AIDS impact is concentrated among those aged 25-49. Indeed, deaths to those aged 25-49 account for 20 per cent of all deaths in the projections with AIDS instead of the 11 per cent expected according to the No-AIDS scenario. Among those aged 65 or over, in contrast, the number of deaths in the projection that incorporates AIDS is lower than in the No-AIDS scenario because fewer people survive to age 65 or over when AIDS is present.

Figures VI.9 and VI.10 illustrate the shift caused by AIDS in the age distribution of deaths. The share of deaths to those under age 5 and those aged 50 or older—that is, the two age groups that jointly account for the largest proportion of deaths in populations not affected by AIDS—decline dramatically when AIDS becomes a major cause of death and the share of deaths to persons aged 25-49 increases. The impact of AIDS is particularly striking among the countries where HIV prevalence was higher than 20 per cent in 2001. In those countries, a full 54 per cent of the deaths expected in 2000-2020 will be to persons aged 25 to 49 years of age. The increase in the number of deaths at ages 25-49 is even more dramatic when illustrated in absolute terms, as in figures VI.11 and VI.12, which also show that the number of deaths at ages 0-4 is projected to be much higher than without AIDS, despite the decreased percentage share of this age group. Also visible is the slight reduction in the number of deaths at ages 65 and above.

4. Infant and child mortality

HIV/AIDS affects infants and children who acquire the disease from their infected mothers during pregnancy and delivery or through breastfeeding. In the absence of treatment, about one third of children born to HIV-positive women acquire the infection from their mothers. The prevalence of HIV in infants and children affects mortality in childhood. It is currently estimated that almost two-thirds of HIV-positive children survive past their first birthday. Consequently, in the countries affected by the HIV/AIDS epidemic, its effect on mortality in childhood is greater on mortality rates between the ages of 1 and 5 than on infant mortality (i.e., below age one). Furthermore, because women who are HIV-positive have, on average, lower fertility than other women, the overall impact of the epidemic on children is dampened.

Thus, even taking into account the effect of AIDS, infant mortality for all 53 affected countries declines from 70 deaths per 1,000 births in 1990-1995 to 24 deaths per 1,000 births in 2045-2050 (annex table VI.10). The effect of AIDS on infant mortality is strongest in the affected countries of Africa, where in 2000-2005 AIDS is expected to cause infant mortality to be higher by 5 deaths per 1,000 births than in the No-AIDS scenario. In all other regions the effect of AIDS on infant mortality is small although, in relative terms, it is moderate on the already very low infant mortality of the two developed countries affected by the epidemic, implying that AIDS is likely to be responsible for a 5 to 6 per cent increase in their infant mortality after 2010.

The effect of AIDS on under-five mortality is more marked than on infant mortality but, just as in the case of infant mortality, AIDS is not projected to reverse the declining trend in under-five mortality at the regional level. For the group of all 53 affected countries, under-five mortality is projected to be 7.8 per cent higher in 2000-2005 than

Figure VI.9. Percentage distribution of projected deaths by age in the medium variant and in the No-AIDS scenario for the 53 affected countries: 2000-2020

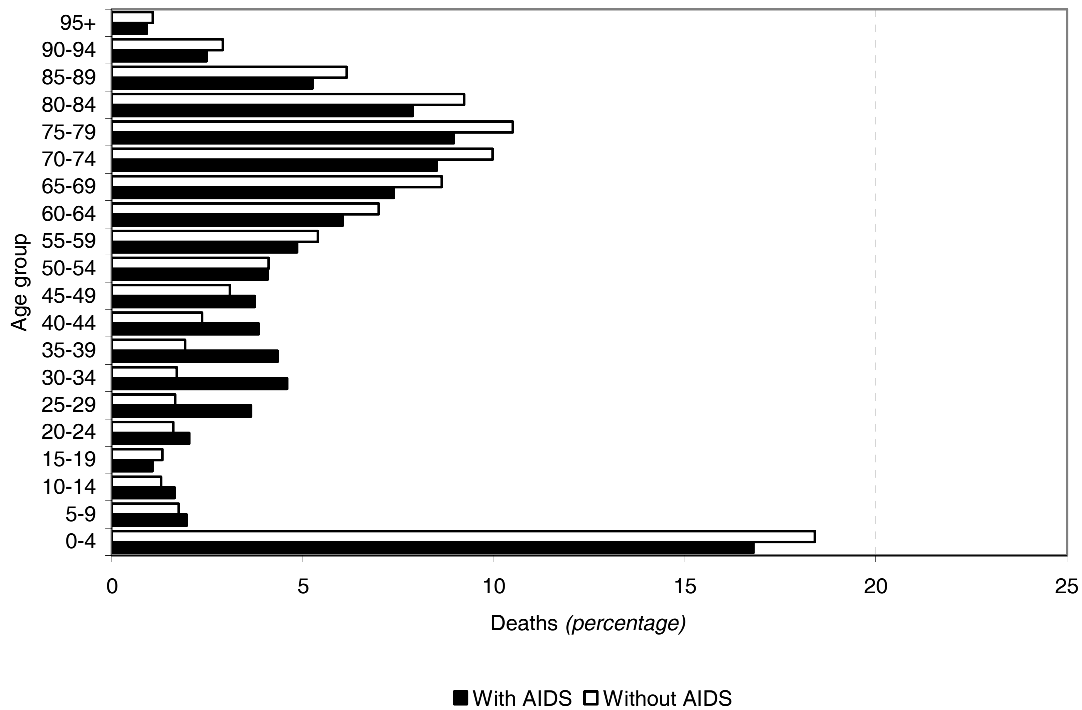


Figure VI.10. Percentage distribution of projected deaths by age in the medium variant and in the No-AIDS scenario for the 7 most affected countries: 2000-2020

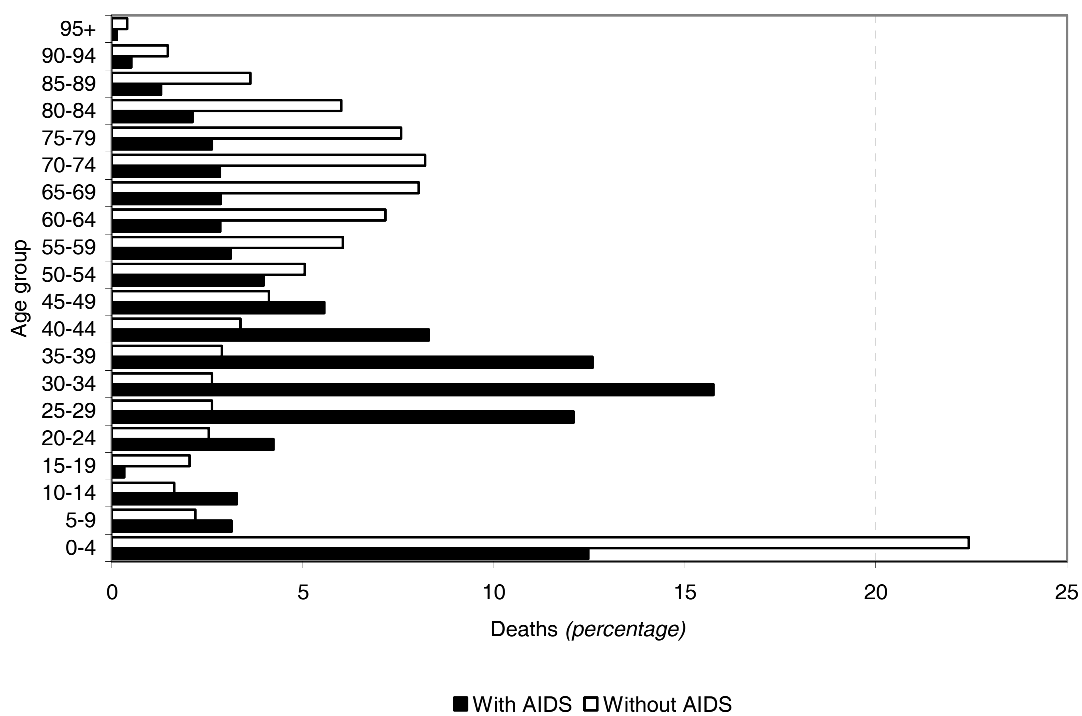


Figure VI.11. Number of deaths by age in the medium variant and in the No-AIDS scenario for the 53 affected countries: 2000-2020

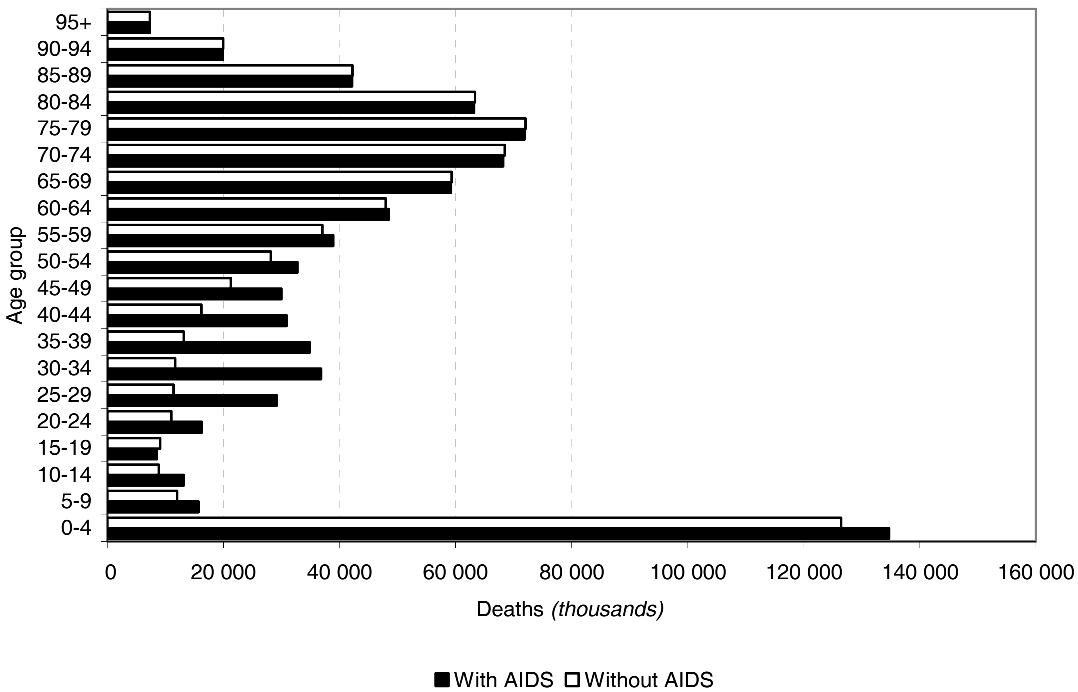
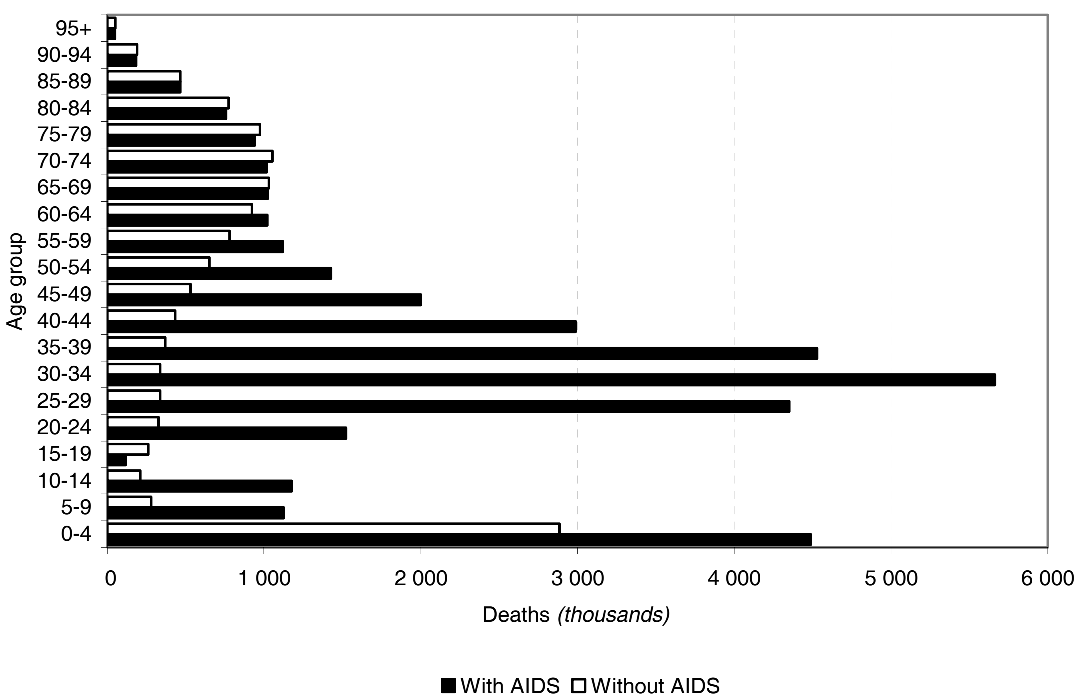


Figure VI.12. Number of deaths by age in the medium variant and in the No-AIDS scenario for the 7 most affected countries: 2000-2020



it would be without AIDS, compared to an excess of 2.2 per cent for infant mortality, and although the relative impact of AIDS is expected to increase to 13.3 per cent in 2045-2050, by that time under-five mortality is projected to be nearly two-thirds lower than in 2000-2005 (33 deaths per 1,000 births versus 92 deaths per 1,000 births). As expected, the effect of AIDS on under-five mortality is particularly high in the affected countries of Africa where 19 additional child deaths per 1,000 births are expected in 2000-2005 than there would have been without AIDS. But even for the affected countries of Africa, under-five mortality is expected to decline from 161 deaths per 1,000 births to 53 deaths per 1,000 births between 2000-2005 and 2045-2050. For the affected countries in all other regions, the absolute effect of AIDS on under-five mortality is considerably smaller with the result that significant reductions of mortality in childhood are projected even in the presence of AIDS.

The increases of mortality in childhood associated with AIDS are more striking when we consider countries grouped according to prevalence level, as in annex table VI.11. For the group of countries with HIV prevalence above 20 per cent in 2001, both infant mortality and under-five are estimated or projected to increase during 1990-2005. For all other prevalence groups, AIDS has not reversed the downward trend in infant and child mortality rates but it has already slowed down that decline and is projected to continue doing so over the foreseeable future.

The AIDS epidemic is also having an impact on mortality rates between ages 5 and 15. According to the survivorship estimates for children infected by HIV used in projecting the impact of the disease, about 40 per cent of infected children survive to their fifth birthday and more than 10 per cent will survive to their tenth birthday. Because non-AIDS mortality at these ages is extremely low, the relative impact of AIDS mortality on the age-specific death rates at ages 5-9 and 10-14 is quite large.

D. Country profiles

This section focuses on the cases of three countries: Zimbabwe in Eastern Africa, and Botswana and South Africa in Southern Africa. In all of them HIV prevalence levels are very high. Botswana and Zimbabwe had the two highest proportions of HIV-positive persons among their adult populations in 2001. But, whereas the epidemic in Zimbabwe had started in the early 1980s, the start of the epidemic in Botswana was more recent. Also recent was the epidemic raging in South Africa, where the epidemic has expanded very rapidly. In all three countries, the demographic impact of HIV/AIDS has already been significant and is expected to become severe over the medium-term future. It is of interest, therefore, to present these cases in some detail.

In Botswana, the country with the highest HIV prevalence in 2001, over one out of every three adults is HIV-positive. According to current projections of the future incidence of HIV infection, in Botswana, out of every 100 persons aged 15 in 2000, 69 will contract HIV before their fiftieth birthday. Life expectancy in Botswana has already dropped from 65 years in 1990-1995 to 56.3 years in 1995-2000 and is projected to fall dramatically to 39.7 years in 2000-2005 (annex table VI.12), a figure about 28 years lower than the life expectancy projected in the absence of AIDS. The decline in life expectancy is projected to bottom out in 2010-2015 at a level of 31.6 years and, even with a projected decline in HIV prevalence, life expectancy is still projected to be a low 43.6 years in 2045-2050. Before the AIDS epidemic hit, Botswana had one of the lowest child mortality rates in sub-Saharan Africa. Today, its under-five mortality is estimated at 104 deaths per 1,000 births, up from 63 deaths per 1,000 in 1990-1995. Although mortality under age five is projected to decline gradually after 2005, it will take 30 years to reach again the level it had in 1990-1995. In fact, the projected level of under-five mortality in 2035-2040 is almost four times as high as that projected for the same period in the absence of AIDS.

Because of increased mortality, population growth in Botswana has already been significantly reduced and population decline is projected to begin in 2005-2010. The average annual growth rate of Botswana's population dropped from 3.3 per cent per year in 1980-1985 to 2.1 per cent in 1995-2000 and is expected to decline further to

–0.4 per cent per year in 2005-2010 (figure VI.13). By 2050, Botswana's population is expected to be 1.4 million, 20 per cent smaller than its population in 2000 and 63 per cent lower than the population projected for 2050 in the absence of AIDS.

In Zimbabwe one out of every three adults is HIV-positive and out of 100 persons aged 15 in 2000, 69 are expected to contract the virus before age 50. Because the epidemic started earlier in Zimbabwe than in Botswana, its detrimental effects were also more pronounced earlier. In 1995-2000, Zimbabwe's life expectancy had already dropped to 41 years, 25 years below the level projected in the absence of AIDS. And even further reductions in average survivorship are expected in the future. Today, Zimbabwe's life expectancy is about 33 years and, despite a decline in the prevalence of HIV after 2010, the dramatic effect of AIDS on life expectancy is projected to diminish only minimally in the future. By 2045-2050, when Zimbabwe's life expectancy is projected to be 45.7 years it will still be 30 years lower than if AIDS had never existed (figure VI.14).

As in the case of Botswana, the impact of HIV/AIDS on population growth in Zimbabwe has been staggering. Estimated at 3.9 per cent per year in 1980-1985, the annual growth rate fell to 1.5 per cent in 1995-2000 and will likely fall further to just 0.5 per cent in 2000-2005. By 2050, Zimbabwe's projected population will be 61 per cent lower than the population projected without AIDS.

In South Africa, the epidemic started later than in Eastern and Middle Africa. Yet, by 2001, one out of every five adults in the country was infected by the disease. While HIV prevalence is lower than in neighbouring Botswana and Zimbabwe, because of its larger population South Africa has more than double the number of persons infected of the two other countries combined. According to projected levels of future HIV incidence, 48 out of every 100 persons aged 15 in South Africa in 2000 will likely become infected by age 50. Although the full impact of the epidemic is yet to be felt, projections over the next decade or two reveal a dire situation. Life expectancy, which was barely affected in 1990-1995, is projected to drop to 41.5 years by 2010-2015, 26.8 years below the level it would have had in the absence of AIDS.

When the higher mortality induced by HIV infection is coupled with the low fertility levels prevalent in South Africa, the country is expected to begin experiencing population decline in 2005-2010 (figure VI.15) and continued population reductions are projected to persist until 2050. By then, South Africa's population is expected to be 9 per cent lower than the country's population in 2000 and 44 per cent lower than the 2050 population projected in the absence of AIDS.

E. Conclusion

As this chapter has shown, for the 53 countries where adult HIV prevalence is significant, the epidemic has already affected demographic trends in serious ways. Furthermore, in most countries, the epidemic is still far from running its course. Increases in mortality, particularly at ages 25 to 49, have been common, resulting in outright reductions in life expectancy. But, although prevalence is estimated to have already peaked in many countries, the major impact of AIDS in terms of increased mortality is expected to become more serious over the medium-term future. Furthermore, in the affected countries, the cumulative effects of AIDS on population growth are dramatic. By 2050, world population is expected to be 479 million lower than it would have been in the absence of AIDS. Africa alone is expected to have 320 million fewer inhabitants in 2050 than it would have had without AIDS. At the world level, the population deficit associated with AIDS results from 297 million premature deaths and 182 million fewer births because of the early demise of infected women.

In considering this assessment of the demographic impact of HIV/AIDS, the reader should bear in mind that there is much uncertainty surrounding both the estimated prevalence of the disease in different populations and the path that the epidemic will follow in the future. Furthermore, more needs to be known about the dynamics of the epidemic itself. For example, it is not certain

Figure VI.13. Average annual rate of change of the population, medium variant and in the No-AIDS scenario, Botswana: 1980-2015

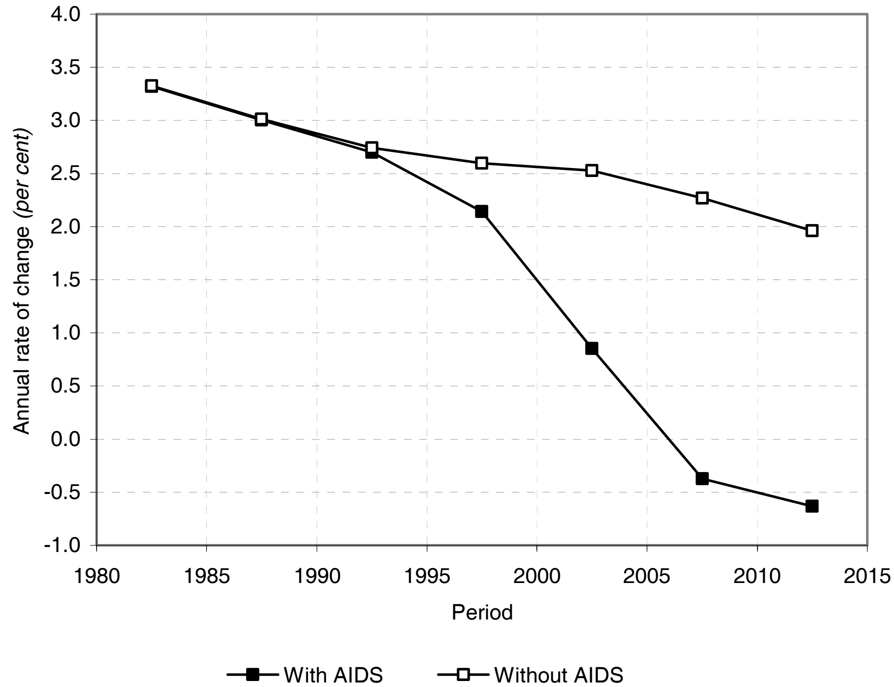


Figure VI.14. Life expectancy at birth medium variant and No-AIDS scenario, Zimbabwe: 1980-2050

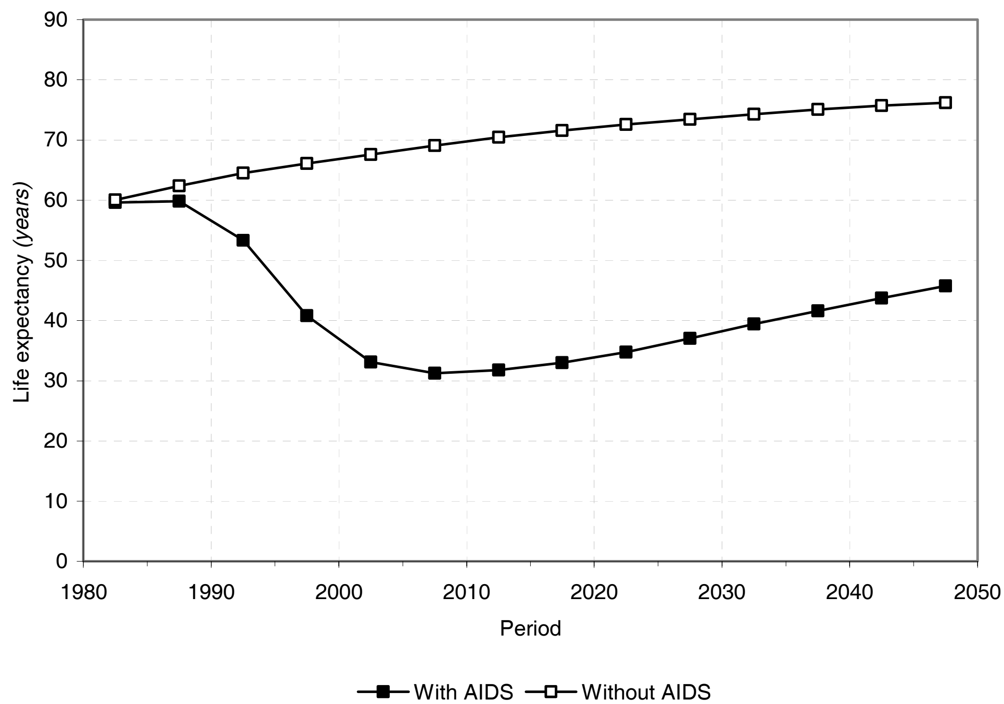
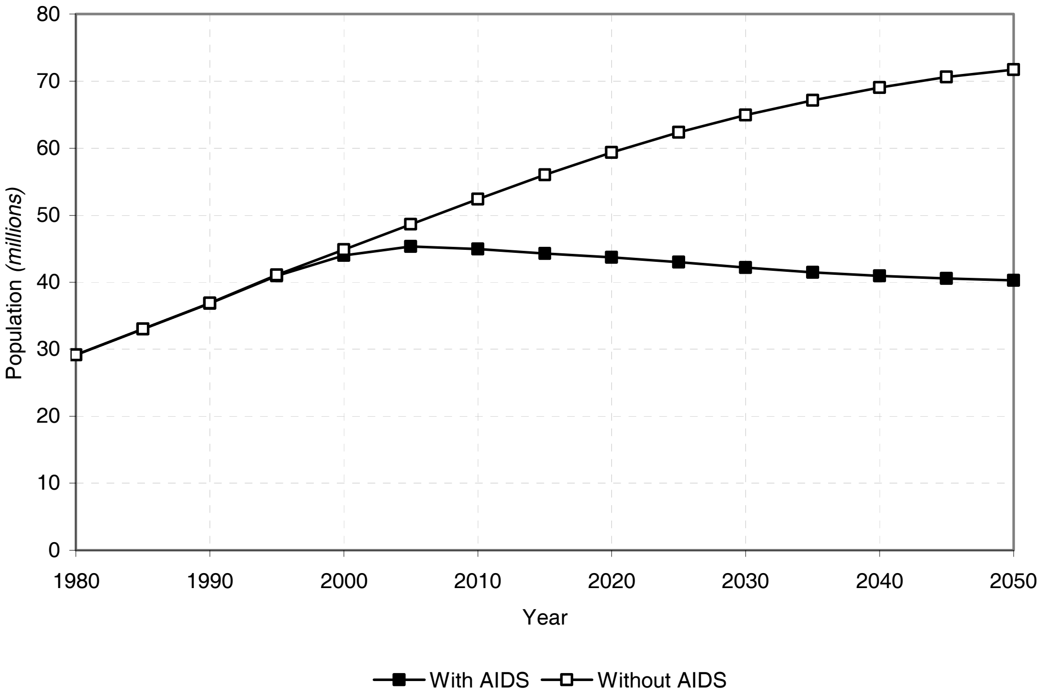


Figure VI.15. Total population, medium variant and No-AIDS scenario, South Africa: 1980-2050



that the progression from HIV infection to AIDS and from AIDS to death will occur according to the same model schedule in all populations or even in most populations in a geographical region. The introduction of therapies that increase the survivorship of infected persons would require the use of different models. Similarly, estimates of the chances of transmission of the disease from mother to child also need to be validated in a variety of settings, and will need modification if concerted action is taken to prevent mother-to-child transmission by the use of appropriate drug therapy. Changes in the assumptions made regarding any of these modelling inputs could result in sizeable changes in the projection results. Consequently, the data presented here should at best be considered as indicative of the possible toll that the epidemic might take under the specific assumptions made.

Another element of uncertainty is related to the impact that a reduction of fertility among HIV-positive women may have on the estimation of HIV prevalence. If fertility is considerably lower among HIV-positive women, available estimates of HIV prevalence may be downwardly biased (Gregson and Zaba, 1998). To improve overall estimates of prevalence, it is necessary to obtain information about HIV prevalence among men and to improve the quality of seroprevalence surveillance carried out among pregnant women visiting antenatal clinics, the cornerstone of most national estimates of HIV prevalence today.

Despite the uncertainties surrounding any measure of the impact of HIV/AIDS, it is important to underscore that all available evidence points to the same conclusion: the disease is already widespread in many countries and shows few signs of being controlled in others. The list of significantly affected countries has been increasing steadily since 1990. The estimates and projections discussed in this chapter, which already show a devastating impact of the disease, are based on an assumption that starting in 2010 behaviours that reduce the proportion of adults at risk of infection and the chance that sex with an infected person will lead to infection will be gradually adopted. If these assumptions are not borne out, the impact of the epidemic could turn out to be worse than anticipated. Governments, the international community and civil society urgently need to raise people's awareness of the seriousness of the AIDS epidemic and take the actions necessary to produce the behavioural changes upon which the assumptions are based.

F. A GUIDE TO THE ANNEX TABLES

The annex tables provide detailed information about the demographic impact of the epidemic. Annex tables VI.1 to VI.3 contain information on the prevalence and incidence of HIV for the countries in which the impact of the disease is explicitly incorporated in the United Nations population estimates and projections. Annex tables VI.4 to VI.5 examine the impact of HIV/AIDS on population size and growth. Annex tables VI.6 to VI.12 present data on the impact of AIDS on selected indicators of mortality, including the number of deaths, life expectancy at birth, infant mortality and under-five mortality.

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LIST OF ANNEX TABLES

TABLE VI.1. COUNTRIES FOR WHICH THE DEMOGRAPHIC IMPACT OF HIV/AIDS IS EXPLICITLY INCLUDED IN THE *2002 REVISION*

	Major area, country or area	*Estimated number of HIV positive persons aged 15-49 in 2001*	*HIV prevalence among persons aged 15-49 (per cent)*
Africa			
1	Angola	320 000	5.5
2	Benin	110 000	3.6
3	Botswana	300 000	38.8
4	Burkina Faso	380 000	6.5
5	Burundi	330 000	8.3
6	Cameroon	860 000	11.8
7	Central African Republic	220 000	12.9
8	Chad	130 000	3.6
9	Congo	99 000	7.2
10	Côte d'Ivoire	690 000	9.7
11	Dem. Rep. of the Congo	1 100 000	4.9
12	Djibouti [1]	30 000	7.1
13	Equatorial Guinea	5 500	3.4
14	Eritrea	49 000	2.8
15	Ethiopia	1 900 000	6.4
16	Gabon [1]	27 000	3.6
17	Gambia	7 900	1.6
18	Ghana	330 000	3.0
19	Guinea [1]	78 000	1.8
20	Guinea-Bissau	16 000	2.8
21	Kenya	2 300 000	15.0
22	Lesotho	330 000	31.0
23	Liberia [1]	114 000	6.5
24	Malawi	780 000	15.0
25	Mali	100 000	1.7
26	Mozambique	1 000 000	13.0
27	Namibia	200 000	22.5
28	Nigeria	3 200 000	5.8
29	Rwanda	430 000	8.9
30	Sierra Leone	150 000	7.0
31	South Africa	4 700 000	20.1
32	Sudan	410 000	2.6
33	Swaziland	150 000	33.4
34	Togo	130 000	6.0
35	Uganda	510 000	5.0
36	United Republic of Tanzania	1 300 000	7.8
37	Zambia	1 000 000	21.5
38	Zimbabwe	2 000 000	33.7

Table VI.1 (*continued*)

Major area, country or area	*Estimated number of HIV positive persons aged 15-49 in 2001*	*HIV prevalence among persons aged 15-49 (per cent)*
Asia		
1 Cambodia	160 000	2.7
2 China	850 000	0.1
3 India	3 800 000	0.8
4 Thailand	650 000	1.8
5 Myanmar [1]	594 000	2.0
Latin America and the Caribbean		
1 Bahamas	6 100	3.5
2 Belize	2 200	2.0
3 Brazil	600 000	0.7
4 Dominican Republic	120 000	2.5
5 Guyana	17 000	2.7
6 Haiti	240 000	6.1
7 Honduras	54 000	1.6
8 Trinidad and Tobago	17 000	2.5
More developed regions		
1 Russian Federation	700 000	0.9
2 United States of America	890 000	0.6

Source: Report on the Global HIV/AIDS Epidemic 2002, Joint United Nations Programme on HIV/AIDS and World Health Organization (Geneva), July 2002.

[1] Data for Djibouti, Gabon, Guinea, Liberia, and Myanmar were not reported in the source publication. The figures given here are estimates by the United Nations Population Division.

TABLE VI.2. ADULT HIV PREVALENCE, YEAR OF WIDESPREAD TRANSMISSION AND YEAR OF PEAK INCIDENCE FOR THE 53 MOST AFFECTED COUNTRIES

	Country	*Adult HIV prevalence in 2001 (per cent)*	*Year when widespread transmission began*	*Year when HIV incidence peaks*	*Years elapsed between start of widespread transmission and peak incidence*
Countries with adult HIV prevalence above 20 per cent					
1	Botswana	36.5	1988	1997	9
2	Zimbabwe	33.9	1980	1993	13
3	Swaziland	33.7	1987	1995	8
4	Lesotho	30.1	1989	1995	6
5	Namibia	22.2	1986	1996	10
6	Zambia	21.6	1980	1991	11
7	South Africa	21.3	1987	1997	10
Countries with adult HIV prevalence between 10 per cent and 20 per cent					
1	Malawi	16.1	1980	1993	13
2	Kenya	15.0	1982	1994	12
3	Central African Republic	12.9	1980	1992	12
4	Mozambique	12.8	1985	1995	10
5	Cameroon	11.8	1985	1997	12
Countries with adult HIV prevalence between 5 per cent and 10 per cent					
1	Côte d'Ivoire	9.6	1980	1991	11
2	Rwanda	9.1	1978	1991	13
3	Burundi	8.3	1973	1987	14
4	United Republic of Tanzania	7.8	1980	1992	12
5	Congo	7.1	1983	1990	7
6	Djibouti	7.1	1980	1998	18
7	Sierra Leone	6.7	1981	2001	20
8	Ethiopia	6.5	1980	1994	14
9	Liberia	6.5	1981	1999	18
10	Burkina Faso	6.4	1980	1991	11
11	Haiti	6.1	1980	1988	8
12	Togo	6.0	1984	1993	9
13	Nigeria	5.8	1982	1997	15
14	Angola	5.5	1981	1999	18
Countries with adult HIV prevalence between 1 per cent and 5 per cent					
1	Dem. Rep. of the Congo	4.9	1970	1988	18
2	Uganda	4.4	1980	1986	6
3	Benin	3.6	1985	1997	12
4	Chad	3.6	1980	1993	13
5	Gabon	3.6	1979	1992	13
6	Bahamas	3.5	1980	1990	10
7	Equatorial Guinea	3.4	1981	2003	22
8	Ghana	2.8	1980	1992	12

TABLE VI.2 (*continued*)

	Country	Adult HIV prevalence in 2001 (per cent)	Year when widespread transmission began	Year when HIV incidence peaks	Years elapsed between start of widespread transmission and peak incidence
9	Guinea-Bissau	2.8	1980	1999	19
10	Eritrea	2.8	1983	1999	16
11	Cambodia	2.7	1988	1998	10
12	Guyana	2.7	1980	1996	16
13	Sudan	2.6	1990	1999	9
14	Dominican Republic	2.5	1980	2000	20
15	Trinidad and Tobago	2.5	1980	2003	23
16	Belize	2.1	1980	1997	17
17	Myanmar	2.0	1988	2005	17
18	Guinea	1.8	1980	1994	14
19	Thailand	1.8	1980	1989	9
20	Gambia	1.6	1980	1992	12
21	Mali	1.6	1980	1992	12
22	Honduras	1.6	1980	2007	27
Countries with adult HIV prevalence below 1 per cent					
1	India	0.8	1988	2014	26
2	Russian Federation	0.8	1990	2003	13
3	Brazil	0.6	1982	1993	11
4	United States of America	0.4	1980	2011	31
5	China	0.1	1996	2008	12

TABLE VI.3. HIV INCIDENCE AND PREVALENCE AMONG THE POPULATION AGED 15-49 IN 2001 AND 2050, PEAK INCIDENCE AND PREVALENCE, AND YEARS WHEN PEAK INCIDENCE AND PREVALENCE OCCUR FOR THE AFFECTED COUNTRIES

	Major area, country or area	*Incidence in 2001* (per cent)	*Prevalence in 2001* (per cent)	*Year in which incidence peaks*	*Peak incidence (per cent)*	*Year in which prevalence peaks*	*Peak prevalence (per cent)*	*Incidence in 2050* (per cent)	*Prevalence in 2050* (per cent)
	Africa								
1	Angola	0.88	5.5	1999	0.90	2006	6.1	0.19	1.8
2	Benin	0.45	3.6	1997	0.63	2002	3.6	0.17	1.6
3	Botswana	3.88	36.5	1997	7.24	2002	36.8	2.04	20.9
4	Burkina Faso	0.71	6.4	1991	1.31	1996	7.3	0.29	2.5
5	Burundi	1.15	8.3	1987	1.58	1993	10.1	0.38	3.4
6	Cameroon	1.61	11.8	1997	1.99	2003	12.2	0.61	5.8
7	Central African Republic	1.43	12.9	1992	2.15	1998	13.2	0.65	6.1
8	Chad	0.40	3.6	1993	0.64	1998	3.8	0.16	1.4
9	Congo	0.98	7.1	1990	2.08	1993	8.3	0.45	4.0
10	Côte d'Ivoire	1.06	9.6	1991	1.96	1996	11.0	0.31	3.1
11	Dem. Rep. of the Congo	0.69	4.9	1988	0.73	1996	5.0	0.22	2.0
12	Djibouti	1.07	7.1	1998	1.11	2005	7.5	0.23	2.2
13	Equatorial Guinea	0.61	3.4	2003	0.63	2009	4.4	0.08	0.8
14	Eritrea	0.47	2.8	1999	0.48	2007	3.2	0.12	1.2
15	Ethiopia	0.76	6.5	1994	1.02	2000	6.5	0.30	2.8
16	Gabon	0.39	3.6	1992	0.62	1997	3.8	0.10	1.0
17	Gambia	0.18	1.6	1992	0.29	1997	1.8	0.06	0.6
18	Ghana	0.33	2.8	1992	0.54	1997	3.1	0.10	1.0
19	Guinea	0.20	1.8	1994	0.30	1999	1.9	0.06	0.6
20	Guinea-Bissau	0.43	2.8	1999	0.44	2005	3.0	0.11	1.0
21	Kenya	1.81	15.0	1994	2.54	2000	15.1	1.07	10.1
22	Lesotho	2.65	30.1	1995	8.30	1999	30.7	1.92	17.9
23	Liberia	1.01	6.5	1999	1.06	2006	7.2	0.26	2.4
24	Malawi	1.87	16.1	1993	2.74	1998	16.7	0.80	7.2
25	Mali	0.19	1.6	1992	0.32	1996	1.8	0.08	0.6
26	Mozambique	1.30	12.8	1995	2.41	2000	12.9	0.71	6.6
27	Namibia	2.42	22.2	1996	3.95	2001	22.2	1.03	10.1
28	Nigeria	0.83	5.8	1997	0.91	2005	6.1	0.43	3.8

TABLE VI.3 (*continued*)

Major area, country or area	Incidence in 2001 (per cent)	Prevalence in 2001 (per cent)	Year in which incidence peaks	Peak incidence (per cent)	Year in which prevalence peaks	Peak prevalence (per cent)	Incidence in 2050 (per cent)	Prevalence in 2050 (per cent)
29 Rwanda	0.95	9.1	1991	1.69	1996	9.8	0.31	3.0
30 Sierra Leone	1.17	6.7	2001	1.17	2008	8.1	0.21	2.0
31 South Africa	2.51	21.4	1997	3.88	2002	21.7	0.81	8.6
32 Sudan	0.49	2.6	1999	0.57	2004	2.9	0.15	1.4
33 Swaziland	3.27	33.7	1995	6.99	2000	33.8	1.96	19.5
34 Togo	0.69	6.0	1993	1.16	1999	6.0	0.44	3.9
35 Uganda	0.39	4.4	1986	3.81	1989	13.3	0.06	0.7
36 United Republic of Tanzania	0.77	7.8	1992	1.51	1997	8.8	0.20	1.9
37 Zambia	2.38	21.6	1991	4.09	1996	23.2	1.05	10.0
38 Zimbabwe	3.77	33.9	1993	5.28	2000	34.0	1.17	12.5
Asia								
1 Cambodia	0.41	2.7	1998	0.53	2004	2.9	0.20	1.8
2 China	0.05	0.1	2008	0.15	2016	1.1	0.06	0.6
3 India	0.15	0.8	2014	0.24	2019	1.9	0.05	0.6
4 Myanmar	0.37	2.0	2005	0.38	2011	2.9	0.13	1.3
5 Thailand	0.13	1.8	1989	0.40	1994	2.4	0.04	0.4
Latin America and the Caribbean								
1 Bahamas	0.44	3.5	1990	0.67	1995	3.7	0.23	2.3
2 Belize	0.29	2.1	1997	0.31	2005	2.2	0.09	1.0
3 Brazil	0.06	0.6	1993	0.12	1998	0.7	0.01	0.2
4 Dominican Republic	0.40	2.5	2000	0.40	2010	3.0	0.15	1.4
5 Guyana	0.34	2.7	1996	0.39	2004	2.7	0.20	2.0
6 Haiti	0.86	6.1	1988	1.65	1992	7.7	0.25	2.3
7 Honduras	0.30	1.6	2007	0.33	2013	2.5	0.09	0.9
8 Trinidad and Tobago	0.43	2.5	2003	0.43	2009	3.4	0.08	0.9
More developed regions								
1 Russian Federation	0.20	0.8	2003	0.23	2009	1.6	0.05	0.5
2 United States of America	0.05	0.4	2011	0.07	2018	0.6	0.02	0.2

TABLE VI.4. ESTIMATED AND PROJECTED POPULATION SIZE AND AVERAGE ANNUAL RATE OF CHANGE ACCORDING TO THE MEDIUM VARIANT ("WITH AIDS") AND TO THE NO-AIDS SCENARIO ("WITHOUT AIDS") BY REGIONAL GROUP OF AFFECTED COUNTRIES: 2000-2050

Groups of affected countries	*Population size (millions)*			*Average annual rate of change (per cent)*	
	2000	*2025*	*2050*	*2000-2025*	*2025-2050*
All 53 affected countries					
With AIDS	3 644	4 687	5 264	1.01	0.47
Without AIDS	3 667	4 921	5 744	1.18	0.62
Difference	-23	-235	-479	-0.17	-0.15
Percentage difference	-0.6	-4.8	-8.3	-14.5	-24.7
38 countries in Africa					
With AIDS	603	983	1 384	1.96	1.37
Without AIDS	619	1 139	1 704	2.44	1.61
Difference	-16	-156	-320	-0.48	-0.24
Percentage difference	-2.6	-13.7	-18.8	-19.8	-15.1
5 countries in Asia					
With AIDS	2 414	2 970	3 098	0.83	0.17
Without AIDS	2 419	3 034	3 235	0.91	0.26
Difference	-5	-65	-137	-0.08	-0.09
Percentage difference	-0.2	-2.1	-4.2	-8.6	-34.2
8 countries in Latin America and the Caribbean					
With AIDS	197	251	273	0.96	0.33
Without AIDS	198	257	282	1.03	0.37
Difference	-1	-6	-9	-0.07	-0.04
Percentage difference	-0.5	-2.2	-3.2	-6.9	-11.2
2 more developed countries					
With AIDS	431	482	510	0.45	0.22
Without AIDS	432	491	524	0.51	0.26
Difference	-1	-9	-13	-0.06	-0.03
Percentage difference	-0.3	-1.7	-2.6	-11.6	-13.0

TABLE VI.5. ESTIMATED AND PROJECTED POPULATION SIZE AND AVERAGE ANNUAL RATE OF CHANGE ACCORDING TO THE MEDIUM VARIANT ("WITH AIDS") AND TO THE NO-AIDS SCENARIO ("WITHOUT AIDS") BY PREVALENCE GROUP OF AFFECTED COUNTRIES: 2000-2020

Groups of affected countries	*Population size (millions)*			*Average annual rate of change (per cent)*	
	2000	*2025*	*2050*	*2000-2025*	*2025-2050*
Countries with adult HIV prevalence above 20 per cent					
With AIDS	74	77	78	0.18	0.05
Without AIDS	77	118	151	1.73	0.96
Difference	-3	-42	-73	-1.56	-0.91
Percentage difference	-4.2	-35.1	-48.4	-89.8	-94.9
Countries with adult HIV prevalence between 10 and 20 per cent					
With AIDS	79	110	133	1.33	0.77
Without AIDS	81	139	195	2.17	1.34
Difference	-2	-30	-62	-0.84	-0.58
Percentage difference	-3.1	-21.5	-32.0	-38.8	-42.8
Countries with adult HIV prevalence between 5 and 10 per cent					
With AIDS	293	498	703	2.12	1.38
Without AIDS	300	560	839	2.50	1.62
Difference	-7	-62	-137	-0.38	-0.24
Percentage difference	-2.2	-11.1	-16.3	-15.4	-14.7
Countries with adult HIV prevalence between 1 and 5 per cent					
With AIDS	304	489	681	1.90	1.32
Without AIDS	310	521	745	2.08	1.43
Difference	-5	-31	-64	-0.18	-0.11
Percentage difference	-1.7	-6.0	-8.6	-8.6	-7.6
Countries with adult HIV prevalence below 1 per cent					
With AIDS	2 895	3 513	3 670	0.77	0.17
Without AIDS	2 900	3 583	3 814	0.85	0.25
Difference	-5	-69	-144	-0.07	-0.08
Percentage difference	-0.2	-1.9	-3.8	-8.4	-30.2

TABLE VI.6. NUMBER OF DEATHS, CRUDE DEATH RATE AND LIFE EXPECTANCY AT BIRTH FOR THE MEDIUM VARIANT ("WITH AIDS") AND THE NO-AIDS SCENARIO ("WITHOUT AIDS"), BY AFFECTED COUNTRIES GROUPED BY REGION, SELECTED PERIODS 1990-2050

Groups of affected countries	*1990-1995*	*2000-2005*	*2010-2015*	*2020-2025*	*2045-2050*
		All 53 affected countries			
Number of deaths (*thousands*)					
With AIDS	161 792	181 929	206 544	231 333	291 534
Without AIDS	156 633	162 175	174 274	193 384	279 116
Absolute difference	5 158	19 754	32 270	37 950	12 418
Percentage difference	3.3	12.2	18.5	19.6	4.4
Crude death rate					
With AIDS	9.9	9.7	9.8	10.1	11.2
Without AIDS	9.6	8.5	8.1	8.0	9.8
Absolute difference	0.3	1.1	1.7	2.0	1.3
Percentage difference	3.5	13.2	21.5	25.0	13.6
Life expectancy at birth					
With AIDS	61.8	62.9	64.2	65.9	71.8
Without AIDS	62.6	65.5	68.4	70.8	75.6
Absolute difference	-0.8	-2.6	-4.1	-4.9	-3.8
Percentage difference	-1.2	-4.0	-6.1	-6.9	-5.0
		38 countries in sub-Saharan Africa			
Number of deaths (*thousands*)					
With AIDS	40 030	55 696	62 822	64 336	63 953
Without AIDS	36 814	40 889	43 889	45 751	56 442
Absolute difference	3 216	14 807	18 933	18 585	7 510
Percentage difference	8.7	36.2	43.1	40.6	13.3
Crude death rate					
With AIDS	16.0	17.5	16.0	13.7	9.5
Without AIDS	14.6	12.3	10.2	8.5	6.8
Absolute difference	1.4	5.1	5.8	5.2	2.7
Percentage difference	9.5	41.8	57.2	61.4	39.0
Life expectancy at birth					
With AIDS	48.7	45.3	47.1	51.3	62.3
Without AIDS	51.2	54.8	58.3	62.1	70.1
Absolute difference	-2.5	-9.5	-11.3	-10.8	-7.8
Percentage difference	-4.9	-17.3	-19.3	-17.4	-11.1
		5 countries in Asia			
Number of deaths (*thousands*)					
With AIDS	93 403	96 065	111 258	131 972	182 768
Without AIDS	92 088	92 604	100 386	114 893	177 947
Absolute difference	1 314	3 461	10 872	17 078	4 821
Percentage difference	1.4	3.7	10.8	14.9	2.7

TABLE VI.6 (*continued*)

Groups of affected countries	*1990-1995*	*2000-2005*	*2010-2015*	*2020-2025*	*2045-2050*
Crude death rate					
With AIDS	8.5	7.7	8.1	9.0	11.8
Without AIDS	8.4	7.4	7.3	7.7	11.0
Absolute difference	0.1	0.3	0.9	1.3	0.8
Percentage difference	1.5	4.0	11.7	17.0	7.1
Life expectancy at birth					
With AIDS	63.9	67.2	68.9	70.2	75.1
Without AIDS	64.2	67.9	71.0	73.4	77.4
Absolute difference	-0.3	-0.7	-2.1	-3.2	-2.3
Percentage difference	-0.5	-1.1	-2.9	-4.4	-3.0
8 countries in Latin America and the Caribbean					
Number of deaths (*thousands*)					
With AIDS	6 635	7 539	8 499	9 731	14 063
Without AIDS	6 434	6 842	7 725	9 001	14 026
Absolute difference	201	697	774	730	37
Percentage difference	3.1	10.2	10.0	8.1	0.3
Crude death rate					
With AIDS	7.5	7.4	7.5	7.9	10.3
Without AIDS	7.3	6.7	6.7	7.1	10.0
Absolute difference	0.2	0.7	0.8	0.7	0.4
Percentage difference	3.3	10.9	11.5	10.4	3.6
Life expectancy at birth					
With AIDS	65.1	67.1	69.7	72.0	77.0
Without AIDS	65.6	68.9	71.6	73.9	78.3
Absolute difference	-0.6	-1.7	-1.9	-1.9	-1.3
Percentage difference	-0.9	-2.5	-2.6	-2.6	-1.6
2 more developed countries					
Number of deaths (*thousands*)					
With AIDS	21 724	22 629	23 964	25 295	30 750
Without AIDS	21 297	21 839	22 272	23 738	30 701
Absolute difference	427	789	1 692	1 557	49
Percentage difference	2.0	3.6	7.6	6.6	0.2
Crude death rate					
With AIDS	10.6	10.4	10.5	10.6	12.1
Without AIDS	10.4	10.0	9.6	9.8	11.8
Absolute difference	0.2	0.4	0.8	0.8	0.3
Percentage difference	2.1	4.0	8.6	8.3	2.8
Life expectancy at birth					
With AIDS	71.9	73.2	74.4	76.1	79.7
Without AIDS	72.5	74.1	76.6	78.4	81.1
Absolute difference	-0.6	-1.0	-2.2	-2.2	-1.4
Percentage difference	-0.8	-1.3	-2.9	-2.9	-1.7

TABLE VI.7. NUMBER OF DEATHS, CRUDE DEATH RATE AND LIFE EXPECTANCY AT BIRTH FOR THE MEDIUM VARIANT ("WITH AIDS") AND THE NO-AIDS SCENARIO ("WITHOUT AIDS"), BY PREVALENCE GROUP OF AFFECTED COUNTRIES, SELECTED PERIODS 1990-2050

Group of affected countries	*1990-1995*	*2000-2005*	*2010-2015*	*2020-2025*	*2045-2050*
Countries with adult HIV prevalence above 20 per cent					
Number of deaths (*thousands*)					
With AIDS	3 364	7 737	9 519	8 943	6 546
Without AIDS	2 816	3 038	3 250	3 701	5 894
Absolute difference	548	4 699	6 269	5 242	651
Percentage difference	19.5	154.7	192.9	141.7	11.0
Crude death rate					
With AIDS	10.5	20.7	24.9	23.3	16.9
Without AIDS	8.7	7.5	6.7	6.5	8.0
Absolute difference	1.8	13.2	18.2	16.8	8.9
Percentage difference	20.4	175.4	273.6	259.6	112.0
Life expectancy at birth					
With AIDS	57.0	41.3	37.6	41.0	52.3
Without AIDS	60.8	63.7	67.0	69.6	74.6
Absolute difference	-3.8	-22.4	-29.4	-28.6	-22.4
Percentage difference	-6.2	-35.1	-43.9	-41.1	-30.0
Countries with adult HIV prevalence between 10 per cent and 20 per cent					
Number of deaths (*thousands*)					
With AIDS	4 878	8 037	9 065	9 249	8 768
Without AIDS	4 422	5 079	5 179	5 267	6 856
Absolute difference	456	2 958	3 886	3 982	1 912
Percentage difference	10.3	58.2	75.0	75.6	27.9
Crude death rate					
With AIDS	14.9	19.6	19.1	17.3	13.4
Without AIDS	13.4	11.8	9.5	7.9	7.2
Absolute difference	1.5	7.8	9.6	9.4	6.2
Percentage difference	11.0	66.7	101.4	119.4	86.0
Life expectancy at birth					
With AIDS	50.8	41.8	42.3	45.9	55.6
Without AIDS	53.6	55.6	59.5	63.4	71.0
Absolute difference	-2.8	-13.8	-17.2	-17.6	-15.4
Percentage difference	-5.3	-24.8	-28.9	-27.7	-21.7
Countries with adult HIV prevalence between 5 per cent and 10 per cent					
Number of deaths (*thousands*)					
With AIDS	20 559	26 178	29 281	30 325	31 453
Without AIDS	19 404	20 754	22 197	22 777	27 288
Absolute difference	1 155	5 424	7 085	7 548	4 165
Percentage difference	6.0	26.1	31.9	33.1	15.3

TABLE VI.7 (*continued*)

Group of affected countries	*1990-1995*	*2000-2005*	*2010-2015*	*2020-2025*	*2045-2050*
Crude death rate					
With AIDS	17.2	16.8	14.9	12.7	9.2
Without AIDS	16.1	12.9	10.5	8.6	6.7
Absolute difference	1.1	3.9	4.4	4.2	2.5
Percentage difference	6.6	30.3	42.0	48.6	37.1
Life expectancy at birth					
With AIDS	47.2	46.5	48.7	52.7	63.0
Without AIDS	49.0	53.8	57.5	61.5	69.9
Absolute difference	-1.8	-7.3	-8.8	-8.8	-6.9
Percentage difference	-3.6	-13.7	-15.2	-14.3	-9.8
Countries with adult HIV prevalence between 1 per cent and 5 per cent					
Number of deaths (*thousands*)					
With AIDS	17 307	20 611	22 586	24 163	28 344
Without AIDS	15 805	17 835	19 556	21 061	27 319
Absolute difference	1 502	2 776	3 030	3 102	1 025
Percentage difference	9.5	15.6	15.5	14.7	3.8
Crude death rate					
With AIDS	13.3	12.8	11.5	10.3	8.5
Without AIDS	12.0	10.9	9.6	8.5	7.5
Absolute difference	1.2	2.0	2.0	1.8	1.0
Percentage difference	10.3	18.2	20.4	21.6	13.2
Life expectancy at birth					
With AIDS	53.1	54.0	56.8	60.0	68.3
Without AIDS	55.5	58.0	61.0	64.3	71.3
Absolute difference	-2.4	-4.0	-4.2	-4.3	-3.0
Percentage difference	-4.4	-6.9	-6.9	-6.7	-4.3
Countries with adult HIV prevalence below 1 per cent					
Number of deaths (*thousands*)					
With AIDS	115 685	119 365	136 093	158 653	216 423
Without AIDS	114 188	115 469	124 092	140 578	211 759
Absolute difference	1 497	3 897	12 001	18 076	4 665
Percentage difference	1.3	3.4	9.7	12.9	2.2
Crude death rate					
With AIDS	8.8	8.0	8.4	9.1	11.8
Without AIDS	8.6	7.8	7.6	8.0	11.1
Absolute difference	0.1	0.3	0.8	1.2	0.7
Percentage difference	1.4	3.6	10.5	14.8	6.1
Life expectancy at birth					
With AIDS	65.4	68.3	70.0	71.3	76.0
Without AIDS	65.7	69.0	72.0	74.3	78.1
Absolute difference	-0.3	-0.7	-2.0	-3.0	-2.0
Percentage difference	-0.5	-1.0	-2.8	-4.0	-2.6

TABLE VI.8. NUMBER OF EXCESS DEATHS, BY SEX, IN THE MEDIUM VARIANT IN COMPARISON WITH THOSE IN THE NO-AIDS SCENARIO, BY REGIONAL GROUPS OF AFFECTED COUNTRIES: 2000-2020

	Males		*Females*		*Both sexes*	
Period	*Number of excess deaths (thousands)*	*Per cent increase*	*Number of excess deaths (thousands)*	*Per cent increase*	*Number of excess deaths (thousands)*	*Per cent increase*
All 53 affected countries						
2000-2005	10 338	12.0	9 416	12.4	19 754	12.2
2005-2010	13 745	15.4	12 915	16.4	26 660	15.9
2010-2015	17 054	18.4	15 217	18.7	32 270	18.5
2015-2020	19 453	19.8	17 054	20.1	36 508	19.9
Total	60 591	16.4	54 602	16.9	115 192	16.6
38 countries in Africa						
2000-2005	7 038	33.0	7 768	39.8	14 807	36.2
2005-2010	8 232	36.8	10 071	49.2	18 303	42.7
2010-2015	8 389	36.6	10 544	50.3	18 933	43.1
2015-2020	8 339	35.6	10 639	49.8	18 978	42.4
Total	31 998	35.5	39 023	47.3	71 021	41.1
5 countries in Asia						
2000-2005	2 227	4.5	1 235	2.9	3 461	3.7
2005-2010	4 136	8.0	2 213	5.0	6 349	6.7
2010-2015	7 078	13.0	3 793	8.3	10 872	10.8
2015-2020	9 606	16.4	5 434	11.2	15 040	14.0
Total	23 047	10.5	12 675	6.8	35 722	8.8
8 countries in Latin America and the Caribbean						
2000-2005	433	11.0	263	9.1	697	10.2
2005-2010	437	10.5	324	10.4	761	10.5
2010-2015	415	9.4	360	10.8	774	10.0
2015-2020	401	8.5	375	10.4	776	9.3
Total	1 686	9.9	1 322	10.2	3 007	10.0
2 more developed countries						
2000-2005	640	5.8	149	1.4	789	3.6
2005-2010	940	8.5	307	2.8	1 247	5.7
2010-2015	1 172	10.5	520	4.7	1 692	7.6
2015-2020	1 107	9.6	606	5.3	1 713	7.5
Total	3 860	8.6	1 582	3.5	5 441	6.1

Table VI.9. Age distribution of projected deaths for 2000-2020 according to the medium variant ("with AIDS") and the No-AIDS scenario ("without AIDS") and difference between the two by age group, by regional group of affected countries

Groups of affected countries	*Age group* 0-4	5-14	15-24	25-34	35-49	50-64	65+	*Total deaths (thousands)*
All 53 affected countries								
With AIDS (percentage of total deaths)	16.8	3.6	3.1	8.2	11.9	15.0	41.4	802 268
Without AIDS (percentage of total deaths)	18.4	3.0	2.9	3.4	7.4	16.5	48.4	687 076
Difference in number of deaths (thousands)	8 286	8 032	4 649	42 980	45 137	6 947	-839	115 192
38 countries in Africa								
With AIDS (percentage of total deaths)	31.7	8.0	5.7	15.9	16.7	8.6	13.4	243 422
Without AIDS (percentage of total deaths)	41.4	7.5	6.5	6.3	8.5	10.4	19.3	172 401
Difference in number of deaths (thousands)	5 675	6 548	2 732	27 813	25 856	2 990	-592	71 021
5 countries in Asia								
With AIDS (percentage of total deaths)	12.3	2.0	2.0	5.0	9.8	17.7	51.2	431 239
Without AIDS (percentage of total deaths)	12.8	1.9	1.8	2.3	6.8	18.6	55.9	395 517
Difference in number of deaths (thousands)	2 292	1 262	1 617	12 349	15 340	3 029	-167	35 722
8 countries in Latin America and the Caribbean								
With AIDS (percentage of total deaths)	10.4	1.6	3.3	7.8	14.7	19.1	43.0	33 124
Without AIDS (percentage of total deaths)	10.8	1.3	3.3	5.1	11.8	20.4	47.4	30 117
Difference in number of deaths (thousands)	192	143	100	1 064	1 343	198	-33	3 007
2 more developed countries								
With AIDS (percentage of total deaths)	1.3	0.3	1.2	3.5	8.5	17.3	67.9	94 482
Without AIDS (percentage of total deaths)	1.2	0.2	1.0	1.8	6.1	17.6	72.1	89 041
Difference in number of deaths (thousands)	128	80	200	1 753	2 598	730	-47	5 441
Countries with adult HIV prevalence above 20 per cent								
With AIDS (percentage of total deaths)	12.5	6.4	4.6	27.8	26.5	9.9	12.3	35 968
Without AIDS (percentage of total deaths)	22.4	3.8	4.6	5.2	10.4	18.3	35.3	12 861
Difference in number of deaths (thousands)	1 602	1 810	1 052	9 339	8 183	1 220	-99	23 107

TABLE VI.10. INFANT MORTALITY AND UNDER-FIVE MORTALITY ACCORDING TO THE MEDIUM VARIANT ("WITH AIDS") AND TO THE NO-AIDS SCENARIO ("WITHOUT AIDS"), BY REGIONAL GROUP OF AFFECTED COUNTRIES, SELECTED PERIODS 1990-2050

Groups of affected countries	*1990-1995*	*2000-2005*	*2010-2015*	*2020-2025*	*2045-2050*
Infant mortality (infant deaths per thousand live births)					
All 53 affected countries					
With AIDS	70	62	51	42	24
Without AIDS	69	61	50	41	24
Absolute difference	1	1	1	1	1
Percentage difference	0.9	2.2	2.9	3.2	3.4
38 countries in sub-Saharan Africa					
With AIDS	104	94	80	65	35
Without AIDS	101	90	75	61	32
Absolute difference	2	5	5	4	3
Percentage difference	2.4	5.3	6.3	6.9	8.6
5 countries in Asia					
With AIDS	64	53	41	33	20
Without AIDS	64	52	40	32	20
Absolute difference	0	0	1	1	0
Percentage difference	0.1	0.5	1.6	2.3	1.9
8 countries in Latin America and the Caribbean					
With AIDS	49	39	31	23	9
Without AIDS	48	39	30	23	9
Absolute difference	0	0	1	0	0
Percentage difference	0.7	1.3	1.8	1.9	2.5
2 more developed countries					
With AIDS	11	9	8	7	5
Without AIDS	11	9	7	6	5
Absolute difference	0	0	0	0	0
Percentage difference	0.4	2.2	5.0	6.4	6.1
Under-five mortality (deaths under age five per thousand live births)					
All 53 affected countries					
With AIDS	103	92	76	62	33
Without AIDS	99	85	69	56	29
Absolute difference	4	7	7	6	4
Percentage difference	4.4	7.8	10.0	11.1	13.3
38 countries in sub-Saharan Africa					
With AIDS	175	161	134	108	53
Without AIDS	163	142	117	92	43
Absolute difference	12	19	18	16	10
Percentage difference	7.4	13.5	15.3	17.3	23.1

TABLE VI.10 (*continued*)

Groups of affected countries	*1990-1995*	*2000-2005*	*2010-2015*	*2020-2025*	*2045-2050*
5 countries in Asia					
With AIDS	87	67	51	41	24
Without AIDS	85	65	48	38	23
Absolute difference	2	2	3	3	1
Percentage difference	2.1	3.1	6.7	7.5	6.5
8 countries in Latin America and the Caribbean					
With AIDS	62	50	40	31	13
Without AIDS	59	47	37	28	12
Absolute difference	3	3	3	2	1
Percentage difference	5.2	6.1	7.8	8.8	9.4
2 more developed countries					
With AIDS	15	11	10	9	7
Without AIDS	14	11	9	8	6
Absolute difference	1	0	1	1	1
Percentage difference	5.9	4.5	13.3	16.2	16.1

TABLE VI.11. INFANT MORTALITY AND UNDER-FIVE MORTALITY ACCORDING TO THE MEDIUM VARIANT ("WITH AIDS") AND TO THE NO-AIDS SCENARIO ("WITHOUT AIDS"), BY PREVALENCE GROUP OF AFFECTED COUNTRIES, SELECTED PERIODS 1990-2020

Group of affected countries	*1990-1995*	*2000-2005*	*2010-2015*	*2020-2025*	*2045-2050*
Infant mortality (infant deaths per thousand live births)					
Countries with adult HIV prevalence above 20 per cent					
With AIDS	63	65	55	45	27
Without AIDS	59	51	41	33	19
Absolute difference	5	14	14	12	8
Percentage difference	8.0	27.2	34.2	37.9	43.1
Countries with adult HIV prevalence between 10 per cent and 20 per cent					
With AIDS	100	96	80	65	36
Without AIDS	97	88	72	57	31
Absolute difference	3	8	8	7	6
Percentage difference	3.1	8.9	11.0	13.0	18.5
Countries with adult HIV prevalence between 5 per cent and 10 per cent					
With AIDS	109	95	80	65	35
Without AIDS	107	92	76	61	32
Absolute difference	2	4	4	3	2
Percentage difference	1.9	4.3	5.1	5.7	7.7
Countries with adult HIV prevalence between 1 per cent and 5 per cent					
With AIDS	94	86	74	61	33
Without AIDS	93	84	72	59	33
Absolute difference	1	1	1	1	1
Percentage difference	1.4	1.6	1.9	2.0	2.1
Countries with adult HIV prevalence below 1 per cent					
With AIDS	58	47	36	29	17
Without AIDS	58	47	36	28	17
Absolute difference	0	0	1	1	0
Percentage difference	0.1	0.5	1.6	2.3	1.9
Under-five mortality (deaths under age five per thousand live births)					
Countries with adult HIV prevalence above 20 per cent					
With AIDS	98	114	100	84	49
Without AIDS	85	73	57	45	23
Absolute difference	13	41	43	40	26
Percentage difference	15.2	56.4	76.2	88.4	113.6
Countries with adult HIV prevalence between 10 per cent and 20 per cent					
With AIDS	167	163	136	109	58
Without AIDS	155	138	110	84	40
Absolute difference	12	24	26	25	19
Percentage difference	8.1	17.5	23.7	29.8	47.2

Table VI.11 (*continued*)

Group of affected countries	*1990-1995*	*2000-2005*	*2010-2015*	*2020-2025*	*2045-2050*
Countries with adult HIV prevalence between 5 per cent and 10 per cent					
With AIDS	185	162	134	107	52
Without AIDS	174	146	119	93	43
Absolute difference	11	16	16	14	9
Percentage difference	6.1	10.9	13.1	15.1	22.0
Countries with adult HIV prevalence between 1 per cent and 5 per cent					
With AIDS	156	144	120	97	48
Without AIDS	146	132	112	89	44
Absolute difference	10	12	9	8	4
Percentage difference	6.9	8.8	7.8	8.6	9.6
Countries with adult HIV prevalence below 1 per cent					
With AIDS	77	59	45	36	21
Without AIDS	75	58	42	34	19
Absolute difference	2	2	3	3	1
Percentage difference	2.2	3.1	6.8	7.6	6.6

TABLE VI.12. EXPECTATION OF LIFE AT BIRTH AND UNDER-FIVE MORTALITY IN THE MEDIUM VARIANT ("WITH AIDS") AND THE NO-AIDS SCENARIO ("WITHOUT AIDS") FOR SELECTED AFFECTED COUNTRIES: 2000-2005, 2010-2015, AND 2045-2050

	2000-2005				*2010-2015*				*2045-2050*			
	Life expectancy at birth (years)		*Under-five mortality (deaths under age five per thousand live births)*		*Life expectancy at birth (years)*		*Under-five mortality (deaths under age five per thousand live births)*		*Life expectancy at birth (years)*		*Under-five mortality (deaths under age five per thousand live births)*	
Country	*With AIDS*	*Without AIDS*	*With AIDS*	*Without AIDS*	*With AIDS*	*Without AIDS*	*With AIDS*	*Without AIDS*	*With AIDS*	*Without AIDS*	*With AIDS*	*Without AIDS*
Botswana	39.7	68.1	104.1	45.2	31.6	70.7	92.8	32.0	43.6	76.2	55.1	13.6
South Africa	47.7	66.6	80.1	44.5	41.5	69.9	70.2	32.4	55.7	76.0	39.1	15.4
Zimbabwe	33.1	67.6	113.7	53.8	31.8	70.5	98.3	38.0	45.7	76.2	52.9	18.0

VII. METHODOLOGY OF THE UNITED NATIONS POPULATION ESTIMATES AND PROJECTIONS

The preparation of each new revision of the official estimates and projections of the United Nations involves two distinct processes: (a) the incorporation of all new and relevant information regarding the past dynamics of the population of each country or area of the world, and (b) the formulation of detailed assumptions about the future paths of fertility, mortality and international migration. In order to ensure consistency and comparability, certain steps must be taken. New information is evaluated to determine recent changes in population dynamics that have an impact on the age and sex structure of the population at the base year (the year when the projection starts). The methods used to carry out this evaluation must be technically appropriate and consistently applied. With respect to the projection period, general guidelines are established regarding the paths that fertility, mortality and international migration are to follow in the future. However, especially with respect to assumptions about future trends, country-specific deviations from the general guidelines are common under two sets of circumstances: (a) when recent trends suggest that the population of a country is not yet ready to embark on the path determined by the general guidelines, a transition period between current dynamics and those embodied in the general guidelines has to be introduced, and (b) when the populations of certain countries are likely to experience a long-term deviation from the paths set by the guidelines, as is the case for countries where the prevalence of HIV/AIDS is high.

This chapter describes the way past estimates were revised during the preparation of the *2002 Revision* of the United Nations population projections. It also examines the assumptions made regarding the future course of fertility, mortality and international migration.

A. THE REVISION OF PAST ESTIMATES OF POPULATION DYNAMICS

One of the major tasks in revising the estimates and projections of the population of each country or area of the world is to obtain and evaluate the most recent information available on each of the three major components of population growth: fertility, mortality and international migration. In addition, newly available census information or other data providing information on the age distribution of each population must be carefully evaluated. The process of updating and revising past population estimates usually entails not only the separate evaluation of the quality of the different estimates available but also and more importantly the search for consistency among them. The key task is therefore to ensure that for each country past trends of fertility, mortality and international migration are consistent with changes in the size of the population and its distribution by age and sex. In very general terms, for most countries in the more developed regions, the availability of detailed information on fertility and mortality trends over time and of periodic censuses of the population greatly facilitates the task of producing reliable estimates of past population dynamics. Yet, even for those countries, the data on international migration flows are generally inadequate. Consequently, consistency between population counts and the components of population change is often achieved by assigning to net international migration the residual estimate obtained by comparing actual intercensal population growth with independent estimates of natural increase.

For many countries in the less developed regions, the estimation of past trends is frequently more complex. In these countries, information may be limited or lacking and the available data may be unreliable. In numerous cases, therefore, consistency can only be achieved by making use of models in conjunction with methods of indirect estimation. In extreme cases, when countries have no data referring to the past decade or two, estimates are derived by inferring levels and trends from those experienced by countries in the same region that have a socio-economic profile similar to the country in question. However, since the 1970s the emphasis put on surveys and census-taking in the developing countries has considerably improved the availability of information. Thus, for the *2002 Revision*, census information was available for virtually all developing countries, and for 145 of the 173 countries or areas in the developing world, the census data used referred to 1990 or later. At the global level, data from censuses or reliable official estimates based on censuses or population registers referring to 1990 or later were available for 194 countries or areas, 85 per cent of the 228 units for which projections are elaborated.

Aside from relying on census information concerning the distribution of the population by age and sex, in order to estimate the population as of 1 July 2000, the base year, it is necessary to know the trends in fertility, mortality and international migration starting from the most recent census date to 2000. For several countries, information referring to the year 2000 or after was also available and used in the estimates. Ideally, complete time series of annual age-specific fertility rates, life-tables and age-specific net international migration rates by sex would be available. In practice, the information available is considerably less comprehensive, consisting often of no more than the average age-specific fertility rates experienced by women over one or two periods of various lengths, estimates of infant or child mortality at several points in time and, less commonly, one or two life-tables for different periods. For developing countries, estimates of recent fertility and child mortality are often derived from surveys, especially when countries lack a civil registration system or have one that does not achieve full coverage of all vital events. When countries have a reliable civil registration system, as is the case in most developed countries and in some developing countries, data on both fertility and mortality by age and sex are theoretically available on a continuous basis. However, owing to either delays in processing the data or the difficulty of estimating appropriate denominators to calculate age-specific fertility or mortality rates, fertility schedules and life tables may only be available for selected years. In preparing the revised estimates of the base-year population, such information has to be taken into account together with trends in other indicators, such as changes in the overall number of births. To provide some assessment of the timeliness of the information on which the *2002 Revision* is based, annex table VII.1 presents the distribution of countries by region and time period, indicating the most recent information used for estimating fertility, child mortality and adult mortality. Such information pertains to a total of 192 countries, each of which was estimated to have a population of 100,000 inhabitants or more in 2000 and for which projections were elaborated using the cohort-component method (i.e., by making separate assumptions about the future paths of age-specific fertility, age and sex-specific mortality, and international migration). For the other 36 countries or areas considered, whose populations were below 100,000 in 2000, only overall projections of the total population were made, based on assumptions about the future rate of growth for the population as a whole.

As annex table VII.1 indicates, the *2002 Revision* incorporates relatively recent information on fertility for most countries: out of the 192 countries or areas considered, 168 had information referring to 1995 or later. Only two countries had no information whatsoever on fertility. All countries in Europe, Northern America and Oceania had information referring to 1995 or later, whereas in the developing regions the percentage of countries with recent information was lower, varying from a high of 91 per cent in Latin America and the Caribbean to a low of 72 per cent in Africa. In Asia, 88 per cent of the countries had recent information on fertility. The availability of information on mortality in childhood was also high, with 167 countries having information referring to 1995 or later, including all of the developed countries. At the regional level, only one country in Africa had no information on childhood mortality while four other African countries and two Asian countries had data referring to dates prior to 1990. This implies that for 99.4 per cent of the world population information from the 1990s an onward was used in the estimation of child mortality.

In contrast with the availability of information on fertility and on mortality in childhood, information on adult mortality was sparse and often outdated. Data on adult mortality referring to 1995 or later was used in only a third of all countries and areas considered (32 per cent) and no empirical data on age specific mortality was applied in the estimation of adult mortality in 40 per cent of the countries. Information was especially lacking among the countries of Africa, where 89 per cent had no information, and among those of Asia, where 36 per cent had no information. However, it is important to underline that life expectancy estimates are generally derived from more recent information than what is declared in annex table VII.1 with respect to adult mortality. And even though these official estimates were in some cases based on national life-tables, the age specific mortality estimates were not necessarily used being that they were not made available, the quality was not adequate or due to methodological constraints (e.g. implementation of the AIDS methodology and actual base year of the projection). Contrary to previous revisions, annex table VII.1 reflects the data that was used in the 2002 Revision, not the availability of the data.

It is important to consider the implications of data availability for the quality of the population estimates and projections made. One way of assessing the probable overall impact of the higher uncertainty involved in making estimates on the basis of non-existent or outdated information is to calculate the proportion of the population to which the less reliable estimates refer. With regard to information on fertility, the population of countries that either lacked data entirely or whose most recently used estimates referred to periods before 1995 amounted to 3.2 per cent of the world population. However, the proportion of the population lacking equally recent estimates of child mortality amounted to 26 per cent, and for adult mortality, this same proportion reached an outstanding 82 per cent (though estimates on adult mortality from the 1990s an onward were used for 53 per cent of the world population). Therefore, the most serious weakness faced in producing the 2000 base-year estimates of the population of each country or area was the lack of recent information on mortality and especially on adult mortality. Owing to the wide availability of data from recent census enumerations, the lack of recent mortality data would be less critical if those enumerations were accurate. However, considerable evidence exists indicating that coverage errors in census enumerations are not necessarily small. Furthermore, as an increasing number of countries face unexpected trends in mortality (e.g., sharp rises brought about by war, civil strife, major social and economic changes, or the HIV/AIDS epidemic), direct information on those trends is necessary to derive appropriate estimates of the changes they produce in the population's age and sex structure.

A final consideration in the revision of past estimates of population dynamics concerns the sources of information regarding international migration. They are varied but generally unable to produce comprehensive data allowing the estimation of net migration over time. In preparing the *2002 Revision* particular attention was paid to official estimates of net international migration or its components (immigration and emigration), to information on labour migration or on international migration flows recorded by receiving countries, to estimates of undocumented or irregular migration by origin, and to the newly available historical database on refugee stocks prepared by the Office of the United Nations High Commissioner for Refugees. However, for many countries, net international migration estimates were not used as an independent input in the estimation of the population for the base year. Rather, as mentioned above, for a number of countries net international migration was estimated as the residual not accounted for by natural increase between two successive enumerations of the population. Clearly, therefore, the paucity of reliable and comprehensive data on international migration should also be singled out as one of the limitations in producing more accurate estimates of the population for the base year.

B. The assumptions made in projecting fertility

The cohort-component method was used to project the population of each of the 192 countries or areas with 100,000 inhabitants or more in 2000 over the period 2000-2050, one quinquennium at a time. The main projection variants, called low, medium and high, differ among themselves only with respect to the future course of fertility. The general guidelines followed in projecting fertility in the three variants were described in the Introduction to this volume. They will not be repeated here. Instead, this section provides a detailed account of how future levels of fertility were projected under the medium variant for countries in different groups. In the discussion that follows, assumptions and methodology will be described in terms of the following groups of countries:

1) High-fertility countries: countries that until 2000 had had no fertility reduction or only an incipient decline;
2) Medium-fertility countries: Countries where fertility has been declining but whose level was still above 2.1 children per woman in 1995-2000;
3) Low-fertility countries: Countries with total fertility at or below 2.1 children per woman in 1995-2000.

The projection of fertility was fundamentally overhauled in the *2002 Revision*. Three major changes were implemented:

1) For high-fertility and medium-fertility countries, a new model of fertility decline was used, replacing the linear model used in previous *Revisions*.
2) In past *Revisions*, total fertility of 2.1 was considered a "floor" below which the fertility of high-fertility and medium-fertility countries would not fall. In the *2002 Revision*, the fertility floor in the medium variant has been lowered to 1.85 children per woman.
3) All low-fertility countries are projected to see their fertility converge to 1.85 children per woman by 2045-2050, rather than the varying levels that were used in the *2000 Revision*.

These changes in assumptions represent the third and final phase in a process of assessment of future trends in fertility. In 1997 the Population Division convened a meeting of experts to review the guidelines for the projection of fertility in countries with below-replacement fertility (United Nations, 2000). As a result of the deliberations of that meeting the fertility of low-fertility countries was maintained below replacement level during the whole projection period in the *1998 Revision*. In 2001, a similar meeting of experts was convened to discuss prospects for countries where fertility had not yet begun to decline or where fertility declines were incipient (United Nations, 2001). Already the *2000 Revision* projected that fertility in those countries would decline more slowly than in the *1998 Revision* and their pace of fertility decline is not projected to be much faster in the *2002 Revision*. Lastly, in 2002 a meeting of experts discussed guidelines on how to project the future fertility of intermediate-fertility countries, that is, those that had already experienced significant fertility decline but had not yet reached levels of fertility below replacement (United Nations, 2002). The projections of fertility in the *2002 Revision* reflect the conclusions reached at that meeting.

1. The high-fertility and medium-fertility countries

In the *2002 Revision* the projection of fertility for the high-fertility and medium-fertility countries has been brought together in a unified model. In the *2000 Revision* the future path of fertility had been projected using differing methodologies for the two groups of countries. The new assumptions for the *2002 Revision* are described below in terms of the pace of fertility decline and the projected minimum level of fertility.

a. The pace of fertility decline

For all countries where fertility was above the replacement level in 1995-2000, fertility was projected in the *2002 Revision* using a new model based upon the combined experience of all countries that underwent fertility decline between 1950 and 2000. This model uses an algorithm relating the change in the TF in the current quinquennium to its level in the preceding quinquennium. The new model better reflects the observed trajectory of fertility declines than the linear models used in earlier Revisions. In the new model, the decline in fertility is relatively slow when the transition is first starting and faster during the middle stage. The pace of decline decreases again near the end of the transition. The largest decrement occurs when fertility is between 4 and 5 children per woman. As a result, compared to the *2000 Revision*, in the *2002 Revision* the initial decline in fertility is faster in most countries, but fertility is projected to reach the replacement level at a later date because of the levelling off of the decline towards the end of the transition.

For most countries, the new model was used to project fertility beginning in the period 2000-2005, based on the estimated level of total fertility in1995-2000. However, in the high-fertility countries where there has been no evidence of fertility decline to date, it was assumed that fertility would remain constant until 2005 and begin to fall according to the model after that year.

An important feature of the new fertility model is its assumption that fertility in all countries will eventually fall below replacement level, but not necessarily by the end of the projection period in 2050. In fact, fewer countries are expected to see fertility levels fall to replacement level by 2050 than were projected to in the *2000 Revision*. In the *2002 Revision*, it is projected that the 37 countries listed in annex table VII.2 will have total fertility above 2.1 in 2045-2050. In the *2000 Revision*, only 16 countries ended the projection period with fertility still above replacement.

b. Projecting a fertility "floor"

In past *Revisions*, the approximate replacement fertility level of 2.1 was considered a floor below which most high-fertility and medium-fertility countries would not fall. In light of evidence that fertility in a growing number of countries in less-developed regions has already dropped below replacement level, or is rapidly approaching it, the fertility "floor" has been lowered to 1.85 children per woman.

In all, 60 countries that had total fertility above 2.1 in 1995-2000 are projected to reach the new floor of 1.85 by 2045-2050. An additional 32 countries are expected to have fertility levels in 2045-2050 that are between 1.85 and 2.1 children per woman. Annex table VII.3 lists all medium-fertility and high-fertility countries in which total fertility is projected to reach replacement level, and compares the period when this level is reached in the *2000* and *2002 Revisions*. In addition, for those countries that reach the total fertility floor of 1.85, annex table VII.3 gives the period in which this floor is attained.

When the high-fertility and medium-fertility countries are taken together with the countries in less-developed regions that already have below-replacement fertility, 3 out of 4 countries in less-developed regions were projected to have fertility below the replacement level by 2050 in the *2002 Revision*.

c. The age pattern of fertility

For both the high-fertility and medium fertility countries the age pattern of fertility was projected by interpolating linearly between a starting proportionate age pattern of fertility and a target model pattern. The target pattern is usually attained in either 2045-2050 or in the period when the country reaches its lowest fertility level. Three model patterns of fertility, shown in annex table VII.4, had been used in *Revisions* prior to 2000. These patterns remain in use for a number of countries. In the *2000* and *2002 Revisions*, additional model patterns have been derived based on the experience of countries that had reached very low levels of fertility. In certain cases, the proportionate age pattern of fertility was held constant for the projection period.

2. Low-fertility countries

Low-fertility countries are those where the total fertility was 2.1 or below in 1995-2000. In the *2002 Revision*, the target level of 1.85 children per woman was reached in all of these countries in the long-term, that is, by 2045-2050. This represents a departure from the *2000 Revision*, in which the low-fertility countries had varying target levels of fertility depending on the most recent estimated level of fertility or, if appropriate data were available, on estimated completed cohort fertility of women born between 1960 and 1964. All low-fertility countries are listed in annex table VII.5, along with their levels of total fertility in 1995-2000 as estimated in the *2002 Revision*. The annex table indicates the period in which each country was projected to reach total fertility of 1.85, as well as the minimum fertility level projected during the period between 2000 and 2050.

While all low-fertility countries were projected to have fertility of 1.85 in the long term in the *2002 Revision*, the short-term projection of total fertility for each country was accomplished taking into account the most recent trends in annual total fertility. For those countries where total fertility was below 1.85 and declining in the 1990s, the annual trend between 1990 and the most recent estimate was generally extrapolated to 2005. Then, for most countries a pause period was projected until 2010, at which time fertility would begin to rise according to a logistic curve reaching 1.85 in 2045-2050. Several low-fertility countries experienced a levelling-off of fertility decline or a slight increase in fertility in the late 1990s. For these countries, total fertility was generally projected to stay constant near its most recent level until 2005 or 2010.

For countries where total fertility in the 1995-2000 was above 1.85 but below 2.1, fertility was projected to decline to 1.85 during the projection period. Generally the decline was projected to stop at 1.85, but in a few countries fertility was projected to dip below 1.85 after 2000 before returning to this level.

The total fertility levels thus obtained were converted into age-specific fertility rates by using age patterns of fertility derived by interpolating between the most recent age pattern of fertility available and a model age-specific pattern. For the countries of Europe, model patterns were to be reached by 2025 in the market economy countries and by 2035 in the countries with economies in transition. Linear interpolation was used to move from the current fertility pattern to the model pattern. Once the model pattern was reached, it was assumed to remain constant until the end of the projection period. The model age patterns of fertility used are shown in annex table VII.6 for the market economies of Europe and in annex table VII.7 for the countries with economies in transition. They were derived from the experience of low-fertility countries. A Beta distribution was fitted to the age-specific fertility patterns typical of market-economy countries (e.g., the Netherlands) and of countries with economies in transition (e.g., Slovenia). By varying the parameters of the Beta distribution in a manner similar to that implied by past trends, a set of model age-specific fertility patterns was generated with different mean ages of childbearing (see annex tables VII.6 and VII.7).

The model age patterns of fertility developed for Europe were also used for several of the low-fertility countries outside of Europe. In certain other low-fertility countries, the proportionate age pattern of fertility was assumed to remain constant over the projection period.

C. The assumptions made in projecting mortality

In contrast with the assumptions made about future fertility trends, only one variant of future mortality trends was used for each country. Assumptions were made in terms of life expectancy at birth by sex. As in previous Revisions, life expectancy was generally assumed to rise consistently over the projection period for most countries or areas. The major exceptions are the countries affected by the HIV/AIDS epidemic. For those countries, hypothetical mortality paths assuming the absence of HIV/AIDS needed to be constructed first. The “NO-AIDS” or background mortality was then used as input for modelling the demographic impact of the epidemic (see chapter VI). In a few countries with economies in transition that experienced a long period of stagnating or even increasing mortality, life expectancy was also projected to increase very little until 2005; it was then assumed to start rising again. Future increments in life expectancy were also adjusted upwardly in countries that had recently experienced war or severe civil strife, assuming that recovery will take place.

For countries where mortality was assumed to follow a declining trend starting in 2000, the pace of change of life expectancy was set according to a chosen model. Three models were developed to reflect plausible future paths of mortality decline. They are based on the experience of a variety of countries, covering levels of life expectancy up to 82.5 years for males and 87.5 years for females. In order to allow the models to be used for levels of live expectancy not yet observed, they were extended to a life expectancy of 92.5 years, assuming constancy of increments beyond 82.5 years. Altogether, the models incorporate a fast pace of improvement, a medium pace and a slow one (see annex table VII.8).

For any given country, the appropriate model was chosen by taking into account the observed pace of mortality decline in the recent to medium-term past. The selected model of improvement in life expectancy was followed until 2025 and, if deemed appropriate, a switch was made as of that date to the medium-pace model. In the case of Japan, an extra-fast pace of improvement with a constant increment of 0.5 years over each a five-year projection period was applied due to the outstanding achievements that have been recorded since 1950.

Once the path of future expectation of life was determined, survival ratios by five-year age group and sex that were consistent with the expectation of life at birth for each quinquennium were calculated. For countries with recent empirical information on the age patterns of mortality, survival ratios for the projection period were obtained by extrapolating the most recent set of estimated survival ratios by the rates of change of an underlying model life table. In other words, under such a procedure the empirical or estimated age pattern of mortality converges towards the underlying model pattern as life expectancy changes over time. For countries lacking recent or reliable information on age patterns of mortality, survival ratios were directly obtained from an underlying model life table. A choice could be made among nine model life-table systems, four proposed by Coale and Demeny (1966; Coale, Demeny, Vaughn 1983; Coale, Guo 1989) and five model systems for developing countries produced by the United Nations (1982). These nine model life tables have been updated and extended by the Population Division so as cover the whole age range up 100 years and above, and a range of life expectancies from 20 to 92.5 years (for more details, see Buettner, 2002). It must be noted that the last available entry in the revised system of model life tables of 92.5 year of life expectancy, for both males and females, are not meant to represent a ceiling for human longevity.

The *2002 Revision* incorporates explicitly the impact of HIV/AIDS for 53 countries, most of which had an adult HIV prevalence of two per cent or more in 2001. Brazil, China, India, the Russian Federation and the United States of America, countries where HIV prevalence is still low but which had a large number of infected persons, were also included. Among the 53 countries considered, 38 countries are in Africa, five are in Asia (Cambodia, China, India, Thailand and Myanmar) and eight in Latin America and the Caribbean (Bahamas, Brazil, Dominican Republic, Guyana, Haiti, and Honduras).

D. The projection of international migration

International migration is the component of population dynamics most difficult to project reliably. This occurs in part because the data available on past trends are sparse and partial, and in part because the movement of people across international boundaries, which is a response to rapidly changing economic, geopolitical or security factors, is subject to a great deal of volatility. In preparing assumptions about future trends in international migration, several pieces of information were taken into account, including (a) the past migration history of a country or area; (b) the migration policy of a country; and (c) the influx of refugees in recent periods. Although in today's world no country or area is closed to international migration, for countries that are not known to foster the admission of international migrants or to be the source of sizeable numbers of migrants, net international migration was assumed to be zero during the whole projection period (2000-2050). That was the case for 14 of the 192 countries or areas for which projections were made using the cohort-component method. A further 18 countries have zero migration starting some time during 2005-2025. Most of the countries where migration is non-zero at the start of the projection period but then becomes zero are countries of origin or destination of refugee flows. Since it was assumed that most refugees that had found asylum in less developed regions would return to their countries of origin by 2005 or 2010, net migration in the countries involved would be non-zero for those two periods and, in most cases, set back to zero thereafter.

Almost all of the 160 countries or areas remaining are projected to experience non-zero net international migration during the whole projection period (three countries have zero net migration within one single five-year period). Among them, 53 are projected to experience positive net flows during 2010-2050 and can therefore be described as "receiving countries" (the period 2010-2050 is used as a reference due to the assumption that most refugees would return to their country of origin at the beginning of the projection period). This group of receiving countries comprises 30 of the 44 more developed regions, including the traditional countries of immigration (e.g. Australia, Canada, New Zealand and the United States), most of the populous countries in Western, Northern and Southern Europe as well as the Russian Federation and Japan. Though the more developed regions are expected to have an overall positive net inflow of migrants throughout the projection phase and subsequently the less developed regions are to have a negative net outflow, it is erroneous to assume that these flows are exclusively "bipolar". Several countries or areas within the less developed regions can be described as "regional poles of attraction" and are also expected to have positive intakes of migrants: these include Hong Kong, Saudi Arabia, Kuwait, Singapore, South Africa, Israel, Venezuela, Argentina, Côte d'Ivoire, Costa Rica and Malaysia, etc.

In absolute terms, the highest net migration levels are projected for the United States and Germany with an average of about 5.5 million and 1.1 million persons per quinquennium, respectively, during the 2010-2050 period. For all other countries where net migration is expected to be positive, the average projected levels for that same period are below one million per quinquennium. Canada is leading the group with 881,250 net migrants on average, followed by the United Kingdom with 675,000, Australia with 405,625, France with 375,000 and Italy with 316,750. In a further eight countries, average projected levels of net international migration range from 100,000 to 300,000 per quinquennium. For the remaining 38 countries, projected net international migration is generally well below 100,000 per quinquennium and for most of these (28 countries), it is lower than 50,000 per quinquennium. In relative terms, however, the highest net migration rates are to be found in the smaller countries or areas such as Luxembourg, Kuwait and Hong Kong and while considering countries with 10 million inhabitants or more, Canada and Australia have the highest migrations rates.

There are 107 countries whose net international migration is projected to be negative over the period 2010-2050. None of these "sending countries" is projected to experience levels of "emigration" comparable to the levels of intake projected for the United States. The highest levels of negative net migration projected are for China, India and Mexico, and they range on average from 1.1 million to about 1.5 million per quinquennium. For an additional 24 countries, projected levels of net migration outflows range from 100,000 to about 1 million per quinquennium. These countries include the Philippines, Indonesia, Pakistan, Ukraine, Bangladesh, Kazakhstan and Turkey, among others. For another 69 countries, the projected levels are considerably lower, ranging on average from 1,000 to 50,000 per quinquennium over the period 2010-2050. That is, more countries are projected to be net sources of international migrants than net receivers of them, and for the former the levels of emigration projected are, on average, lower in magnitude than the levels of immigration projected for the receiving countries.

Usually, migration assumptions are expressed in terms of the net number of international migrants. Their distribution by sex is established on the basis of what is known about the participation of men and women in different types of flows (e.g. labour force migration). Then, given the insufficiency of suitable information on the age distribution of migrant flows, models are generally used to distribute the overall net number of male and female migrants by age group so that they can be used as input for the cohort-component projection method. For the few countries having distributions by age and sex of international migrants, those distributions were used to determine which model was most suitable or, in some cases, they were used directly as input. The distribution by age and sex of the net number of migrants was generally kept constant over the projection period.

E. A GUIDE TO THE ANNEX TABLES

The annex tables contain detailed information on the most recent data used in producing country estimates (annex table VII.1), on assumptions about total fertility and model fertility schedules (annex tables VII.2 to VII.7) and on models for mortality improvement (annex table VII.8).

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LIST OF ANNEX TABLES

TABLE VII.1. DISTRIBUTION OF COUNTRIES AND THE POPULATION ACCORDING TO THE MOST RECENT DATA USED FOR THE ESTIMATION OF FERTILITY, CHILD MORTALITY AND ADULT MORTALITY

Topic and reference date	*Africa*	*Asia*	*Europe and Northern America*	*Latin America and the Caribbean*	*Oceania*	*Total*
Fertility						
			Number of countries			
No Information	1	1	—	—	—	2
Before 1985	4	1	—	—	—	5
1985-1989	3	1	—	—	—	4
1990-1994	7	3	—	3	—	13
1995 or later	39	44	41	32	12	168
TOTAL	54	50	41	35	12	192
			Population (millions)			
No Information	0	1	—	—	—	1
Before 1985	65	21	—	—	—	86
1985-1989	14	23	—	—	—	37
1990-1994	38	30	—	4	—	72
1995 or later	679	3 605	1 043	516	31	5 873
TOTAL	796	3 680	1 043	520	31	6 069
			Percentage of the population			
No Information	—	—	—	—	—	—
Before 1985	8.2	0.6	—	—	—	1.4
1985-1989	1.7	0.6	—	—	—	0.6
1990-1994	4.8	0.8	—	0.7	—	1.2
1995 or later	85.3	98.0	100.0	99.3	100.0	96.8
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
Child mortality						
			Number of countries			
No Information	1	—	—	—	—	1
Before 1985	2	1	—	—	—	3
1985-1989	2	1	—	—	—	3
1990-1994	4	5	—	8	1	18
1995 or later	45	43	41	27	11	167
TOTAL	54	50	41	35	12	192
			Population (millions)			
No Information	—	—	—	—	—	—
Before 1985	4	21	—	—	—	25
1985-1989	7	3	—	—	—	10
1990-1994	82	1 306	—	148	5	1 542
1995 or later	702	2 349	1 043	372	25	4 492
TOTAL	796	3 680	1 043	520	31	6 069

TABLE VII.1 (*continued*)

Topic and reference date	*Africa*	*Asia*	*Europe and Northern America*	*Latin America and the Caribbean*	*Oceania*	*Total*
			Percentage of the population			
No Information............	—	—	—	—	—	—
Before 1985.................	0.5	0.6	—	—	—	0.4
1985-1989	0.9	0.1	—	—	—	0.2
1990-1994	10.3	35.5	—	28.4	17.4	25.4
1995 or later	88.2	63.8	100.0	71.6	82.6	74.0
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
Adult mortality						
			Number of countries			
No Information............	48	18	—	7	4	77
Before 1985.................	1	1	—	3	1	6
1985-1989	2	7	2	3	1	15
1990-1994	2	7	5	16	2	32
1995 or later	1	17	34	6	4	62
TOTAL	54	50	41	35	12	192
			Population (millions)			
No Information............	715	519	—	38	1	1 272
Before 1985.................	1	21	—	9	—	32
1985-1989	65	1 456	7	7	—	1 535
1990-1994	9	1 383	314	434	5	2 146
1995 or later	6	300	722	32	24	1 084
TOTAL	796	3 680	1 043	520	31	6 069
			Percentage of the population			
No Information............	89.8	14.1	—	7.2	1.9	21.0
Before 1985.................	0.1	0.6	—	1.8	1.4	0.5
1985-1989	8.2	39.6	0.7	1.3	0.8	25.3
1990-1994	1.1	37.6	30.1	83.5	17.9	35.4
1995 or later	0.8	8.1	69.2	6.2	78.1	17.9
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0

Table VII.2. High-fertility countries whose fertility was projected to remain above replacement level in 2045-2050

Countries	*2002 Revision* Total fertility in 1995-2000	*2002 Revision* Total fertility in 2045-2050	*2000 Revision* Total fertility in 2045-2050
Niger	8.00	3.85	3.82
Yemen	7.30	3.18	3.35
Somalia	7.25	3.05	3.27
Angola	7.20	3.00	3.26
Burkina Faso	6.89	2.93	2.82
Uganda	7.10	2.90	2.85
Mali	7.00	2.90	2.85
Guinea-Bissau	7.10	2.86	2.10
Liberia	6.80	2.78	2.81
Afghanistan	6.90	2.77	2.82
Burundi	6.80	2.74	2.81
Dem. Rep. of the Congo	6.70	2.61	2.36
Chad	6.65	2.56	2.35
Ethiopia	6.50	2.55	2.80
Malawi	6.46	2.53	2.63
Sierra Leone	6.50	2.45	2.34
Mauritania	6.00	2.44	2.10
Congo	6.29	2.39	2.33
Djibouti	6.10	2.38	2.10
Madagascar	6.10	2.38	2.10
Zambia	6.05	2.36	2.10
Occupied Palestinian Territory	5.99	2.34	2.10
Guinea	6.27	2.33	2.10
Mozambique	5.90	2.29	2.10
Nigeria	5.92	2.24	2.10
Central African Republic	5.30	2.24	2.10
Eritrea	5.93	2.23	2.10
Oman	5.44	2.19	2.10
Rwanda	6.20	2.17	2.10
Bhutan	5.50	2.17	2.10
Equatorial Guinea	5.89	2.17	2.10
Senegal	5.40	2.16	2.10
Benin	6.10	2.16	2.10
Comoros	5.40	2.14	2.10
Cambodia	5.25	2.13	2.10
Gambia	5.20	2.11	2.10
Côte d'Ivoire	5.30	2.11	2.10

TABLE VII.3. COMPARISON OF THE PERIOD IN WHICH REPLACEMENT-LEVEL FERTILITY IS ATTAINED, *2000* AND *2002* REVISIONS

Region and country	Total fertility in 1995-2000	Period when total fertility of 2.1 is reached		Difference in years between the 2000 and 2002 Revisions	Period when total fertility of 1.85 is reached
	2002 Revision	*2000 Revision*	*2002 Revision*		*2002 Revision*
Africa					
Algeria	3.15	2010-2015	2015-2020	5	2025-2030
Botswana	4.00	2025-2030	2035-2040	10	2045-2050
Cameroon	5.10	2035-2040	2045-2050	10	..
Cape Verde	3.80	2020-2025	2030-2035	10	2040-2045
Egypt	3.51	2010-2015	2030-2035	20	2045-2050
Gabon	4.50	2040-2045	2040-2045	—	..
Ghana	4.60	2030-2035	2045-2050	15	..
Kenya	4.60	2025-2030	2040-2045	15	..
Lesotho	4.34	2035-2040	2040-2045	5	..
Libyan Arab Jamahiriya	3.43	2015-2020	2020-2025	5	2030-2035
Morocco	3.00	2015-2020	2025-2030	10	2040-2045
Namibia	5.15	2035-2040	2045-2050	10	..
Réunion	2.30	2005-2010	2010-2015	5	2030-2035
Sao Tome and Principe[1]	4.50	..	2040-2045	..	..
South Africa	2.90	2015-2020	2015-2020	—	2030-2035
Sudan	4.90	2030-2035	2045-2050	15	..
Swaziland	5.10	2035-2040	2040-2045	5	..
Togo	5.80	2040-2045	2045-2050	5	..
Tunisia	2.32	2000-2005	2000-2005	—	2010-2015
United Republic of Tanzania	5.70	2035-2040	2045-2050	10	..
Western Sahara	4.40	2030-2035	2040-2045	10	..
Zimbabwe	4.50	2025-2030	2040-2045	15	..
Asia					
Azerbaijan	2.30	1995-2000	2000-2005	5	2045-2050
Bahrain	2.98	2005-2010	2015-2020	10	2020-2025
Bangladesh	3.95	2025-2030	2030-2035	5	2040-2045
Brunei Darussalam	2.70	2010-2015	2010-2015	—	2020-2025
Dem. Rep. of Timor-Leste	4.35	2020-2025	2040-2045	20	..
India	3.45	2015-2020	2025-2030	10	2035-2040
Indonesia	2.60	2005-2010	2015-2020	10	2030-2035
Iran (Islamic Republic of)	2.53	2010-2015	2010-2015	—	2025-2030
Iraq	5.25	2030-2035	2040-2045	10	..
Israel	2.94	2015-2020	2025-2030	10	2040-2045
Jordan	4.11	2030-2035	2030-2035	—	2045-2050
Kuwait	2.89	2015-2020	2025-2030	10	2040-2045
Kyrgyzstan	2.89	2005-2010	2015-2020	10	2020-2025
Lao People's Dem. Republic	5.30	2030-2035	2040-2045	10	..
Lebanon	2.29	2005-2010	2005-2010	—	2025-2030
Malaysia	3.26	2015-2020	2025-2030	10	2040-2045
Maldives	5.80	2040-2045	2045-2050	5	..
Mongolia	2.70	2005-2010	2015-2020	10	2030-2035
Myanmar	3.30	2010-2015	2020-2025	10	2035-2040

TABLE VII.3 (*continued*)

Region and country	Total fertility in 1995-2000	Period when total fertility of 2.1 is reached		Difference in years between the 2000 and 2002 Revisions	Period when total fertility of 1.85 is reached
	2002 Revision	2000 Revision	2002 Revision		2002 Revision
Nepal	4.65	2035-2040	2045-2050	10	..
Pakistan	5.48	2035-2040	2045-2050	10	..
Philippines	3.64	2015-2020	2025-2030	10	2040-2045
Qatar	3.70	2020-2025	2025-2030	5	2040-2045
Saudi Arabia	5.09	2040-2045	2040-2045	—	..
Syrian Arab Republic	3.82	2025-2030	2030-2035	5	2040-2045
Tajikistan	3.72	2025-2030	2020-2025	-5	2025-2030
Turkey	2.70	2005-2010	2010-2015	5	2020-2025
Turkmenistan	3.03	2015-2020	2020-2025	5	2035-2040
United Arab Emirates	3.17	2015-2020	2020-2025	5	2035-2040
Uzbekistan	2.88	2005-2010	2010-2015	5	2015-2020
Viet Nam	2.50	2005-2010	2010-2015	5	2025-2030
Europe					
Albania	2.43	2005-2010	2010-2015	5	2025-2030
Latin America and the Caribbean					
Argentina	2.62	2015-2020	2015-2020	—	2040-2045
Bahamas	2.40	2010-2015	2010-2015	—	2025-2030
Belize	3.60	2010-2015	2020-2025	10	2030-2035
Bolivia	4.32	2030-2035	2040-2045	10	..
Brazil	2.34	2005-2010	2005-2010	—	2020-2025
Chile	2.44	2020-2025	2020-2025	—	2045-2050
Colombia	2.80	2030-2035	2030-2035	—	2045-2050
Costa Rica	2.58	2030-2035	2005-2010	-25	2035-2040
Dominican Republic	2.88	2025-2030	2025-2030	—	2045-2050
Ecuador	3.10	2020-2025	2020-2025	—	2040-2045
El Salvador	3.17	2025-2030	2025-2030	—	2045-2050
French Guiana	3.83	2045-2050	2030-2035	-15	2040-2045
Guatemala	4.93	2035-2040	2035-2040	—	..
Guyana	2.45	2010-2015	2010-2015	—	2030-2035
Haiti	4.38	2040-2045	2045-2050	5	..
Honduras	4.30	2030-2035	2035-2040	5	..
Jamaica	2.50	2010-2015	2015-2020	5	2030-2035
Mexico	2.75	2020-2025	2015-2020	-5	2030-2035
Nicaragua	4.32	2030-2035	2040-2045	10	..
Panama	2.79	2015-2020	2025-2030	10	2035-2040
Paraguay	4.17	2035-2040	2035-2040	—	..
Peru	3.20	2020-2025	2020-2025	—	2045-2050
Saint Lucia	2.40	2015-2020	2010-2015	-5	2025-2030
Saint Vincent and the Grenadines[1]	2.40	..	2005-2010	..	2020-2025
Suriname	2.62	2000-2005	2020-2025	20	2035-2040
United States Virgin Islands[1]	2.25	..	2005-2010	..	2020-2025
Uruguay	2.40	2015-2020	2015-2020	—	2040-2045
Venezuela	2.98	2020-2025	2020-2025	—	2040-2045

TABLE VII.3 (*continued*)

Region and country	Total fertility in 1995-2000	Period when total fertility of 2.1 is reached		Difference in years between the 2000 and 2002 Revisions	Period when total fertility of 1.85 is reached
	2002 Revision	*2000 Revision*	*2002 Revision*		*2002 Revision*
Oceania					
Fiji	3.20	2020-2025	2030-2035	10	2045-2050
French Polynesia	2.60	2015-2020	2015-2020	—	2035-2040
Guam	3.20	2025-2030	2030-2035	5	2045-2050
Micronesia (Fed. States of)	4.30	2040-2045	2040-2045	—	..
New Caledonia	2.60	2015-2020	2020-2025	5	2035-2040
Papua New Guinea	4.60	2040-2045	2045-2050	5	..
Samoa	4.51	2035-2040	2045-2050	10	..
Solomon Islands	4.99	2040-2045	2040-2045	—	..
Tonga[1]	4.20	..	2040-2045	..	..
Vanuatu	4.59	2035-2040	2045-2050	10	..

[1]The population of this country was projected using the cohort-component method beginning with the *2002 Revision*.

TABLE VII.4. MODEL FERTILITY SCHEDULES FOR HIGH AND MEDIUM-FERTILITY COUNTRIES

	Percentage of total fertility by age group							
Model	*15-19*	*20-24*	*25-29*	*30-34*	*30-39*	*40-45*	*45-49*	*Total*
Late-child bearing.........................	4	22	40	22	10	2	—	100
Intermediate.................................	12	31	31	16	8	2	—	100
Early child-bearing	20	40	25	10	4	1	—	100

TABLE VII.5. COUNTRIES THAT HAD A FERTILITY LEVEL OF 2.1 OR BELOW IN 1995-2000, AND PERIOD IN WHICH THESE COUNTRIES ARE PROJECTED TO REACH FERTILITY LEVELS AT 1.85

Region and country	*Total fertility in 1995-2000*	*Period when total fertility of 1.85 is reached*	*Minimum during 2000-2050*
Africa			
Mauritius	2.05	2010-2015	1.85
Asia			
Armenia	1.42	2045-2050	1.10
China	1.80	2010-2015	1.83
China, Macao SAR	1.15	2045-2050	1.10
China, Hong Kong SAR	1.10	2045-2050	1.00
Cyprus	1.96	2010-2015	1.85
Dem. People's Rep. of Korea	2.05	2015-2020	1.85
Georgia	1.58	2045-2050	1.35
Japan		2045-2050	1.32
Kazakhstan	2.10	2005-2010	1.85
Republic of Korea	1.51	2045-2050	1.34
Singapore	1.57	2045-2050	1.24
Sri Lanka	2.10	2010-2015	1.85
Thailand	1.95	2010-2015	1.85
Latin America and the Caribbean			
Barbados	1.50	2040-2045	1.50
Cuba	1.55	2025-2030	1.55
Guadeloupe	2.10	2020-2025	1.85
Martinique	1.90	2005-2010	1.85
Netherlands Antilles	2.10	2015-2020	1.85
Puerto Rico	1.99	2005-2010	1.85
Trinidad and Tobago	1.65	2045-2050	1.55
Europe			
Austria	1.36	2045-2050	1.23
Belarus	1.27	2045-2050	1.20
Belgium	1.60	2045-2050	1.66
Bosnia and Herzegovina	1.35	2045-2050	1.30
Bulgaria	1.14	2045-2050	1.10
Channel Islands	1.50	2045-2050	1.54
Croatia	1.60	2045-2050	1.65
Czech Republic	1.18	2045-2050	1.16
Denmark	1.75	2045-2050	1.77
Estonia	1.28	2045-2050	1.22
Finland	1.74	2045-2050	1.73
France	1.76	2045-2050	1.85
Germany	1.34	2045-2050	1.35
Greece	1.30	2045-2050	1.27
Hungary	1.38	2045-2050	1.20
Iceland	2.06	2010-2015	1.85
Ireland	1.90	2005-2010	1.85
Italy	1.21	2045-2050	1.23
Latvia	1.17	2045-2050	1.10
Lithuania	1.38	2045-2050	1.25

TABLE VII.5 (*continued*)

Region and country	*Total fertility in 1995-2000*	*Period when total fertility of 1.85 is reached*	*Minimum during 2000-2050*
Luxembourg	1.73	2045-2050	1.73
Malta	1.86	2045-2050	1.70
Netherlands	1.60	2045-2050	1.72
Norway	1.85	2045-2050	1.77
Poland	1.48	2045-2050	1.26
Portugal	1.46	2045-2050	1.40
Republic of Moldova	1.56	2045-2050	1.30
Romania	1.32	2045-2050	1.32
Russian Federation	1.25	2045-2050	1.14
Serbia and Montenegro	1.77	2045-2050	1.60
Slovakia	1.40	2045-2050	1.28
Slovenia	1.25	2045-2050	1.10
Spain	1.19	2045-2050	1.15
Sweden	1.56	2045-2050	1.64
Switzerland	1.47	2045-2050	1.41
TFYR Macedonia	1.92	2045-2050	1.85
Ukraine	1.25	2045-2050	1.15
United Kingdom	1.70	2040-2045	1.58
Northern America			
Canada	1.56	2045-2050	1.44
United States of America	2.05	2045-2050	1.85
Oceania			
Australia	1.77	2045-2050	1.65
New Zealand	1.97	2045-2050	1.85

TABLE VII.6. MODEL AGE PATTERNS OF FERTILITY USED FOR THE MARKET ECONOMY COUNTRIES OF EUROPE

	Proportionate age-specific fertility by mean age of childbearing				
Age group	*28*	*29*	*30*	*31*	*32*
15-19	0.0224	0.0146	0.0095	0.0062	0.0040
20-24	0.2292	0.1753	0.1318	0.0979	0.0717
25-29	0.4321	0.4036	0.3627	0.3158	0.2671
30-34	0.2618	0.3142	0.3531	0.3755	0.3810
35-39	0.0522	0.0866	0.1298	0.1789	0.2300
40-44	0.0022	0.0058	0.0129	0.0253	0.0451
45-49	0.0000	0.0000	0.0001	0.0003	0.0010
TOTAL	1.0000	1.0000	1.0000	1.0000	1.0000

TABLE VII.7. MODEL AGE PATTERNS OF FERTILITY USED FOR THE COUNTRIES WITH ECONOMIES IN TRANSITION

	Proportionate age-specific fertility by mean age of childbearing				
Age group	*26*	*27*	*28*	*29*	*30*
15-19	0.0788	0.0560	0.0398	0.0283	0.0201
20-24	0.3528	0.2945	0.2410	0.1940	0.1541
25-29	0.3841	0.3927	0.3840	0.3620	0.3309
30-34	0.1590	0.2096	0.2562	0.2944	0.3212
35-39	0.0244	0.0446	0.0728	0.1081	0.1484
40-44	0.0009	0.0026	0.0062	0.0131	0.0247
45-49	—	—	—	0.0002	0.0005
TOTAL	1.0000	1.0000	1.0000	1.0000	1.0000

TABLE VII.8. MODELS FOR MORTALITY IMPROVEMENT, QUINQUENNIAL GAINS IN LIFE EXPECTANCY AT BIRTH ACCORDING TO INITIAL LEVEL OF MORTALITY

Initial mortality level (e_o in years)	*Fast pace*		*Medium pace*		*Slow pace*	
	Male	*Female*	*Male*	*Female*	*Male*	*Female*
55.0-57.5	2.50	2.50	2.50	2.50	2.00	2.00
57.5-60.0	2.50	2.50	2.50	2.50	2.00	2.00
60.0-62.5	2.50	2.50	2.00	2.50	2.00	2.00
62.5-65.0	2.30	2.50	2.00	2.50	2.00	2.00
65.0-67.5	2.00	2.50	1.50	2.30	1.50	2.00
67.5-70.0	1.50	2.30	1.20	2.00	1.00	1.50
70.0-72.5	1.20	2.00	1.00	1.50	0.80	1.20
72.5-75.0	1.00	1.50	0.80	1.20	0.50	1.00
75.0-77.5	0.80	1.20	0.50	1.00	0.30	0.80
77.5-80.0	0.50	1.00	0.40	0.80	0.30	0.50
80.0-82.5	0.50	0.80	0.40	0.50	0.30	0.30
82.5-85.0	0.50	0.50	0.40	0.40	0.30	0.30
85.0-87.5	0.50	0.50	0.40	0.40	0.30	0.30
87.5-90.0	0.50	0.50	0.40	0.40	0.30	0.30
90.0-92.5	0.50	0.50	0.40	0.40	0.30	0.30

VIII. SOURCES OF DATA AND DEMOGRAPHIC METHODS

In preparing the *2002 Revision* of the official United Nations population estimates and projections, the Population Division considered the most recent demographic data available for each and every country or area of the world. Standard demographic techniques were used to estimate the population by age and sex for the base year (2000) as well as trends in total fertility, life expectancy at birth, infant mortality and international migration up to 2000. The resulting estimates provided the basis from which the population projections follow. A full description of the methodology used in deriving the population projections can be found in chapter VII.

This chapter presents, for each country and area, a brief description of the data sources and demographic methods used to make the base-year estimates for each country or area. Sources of data and methods are given for every country or area of the world, although for those with a population of fewer than 100,000 inhabitants in 2000, information is provided for the total population only. These descriptions assume that the reader has knowledge of the types of data and methods employed by demographers to obtain population estimates and refer to those data types and methods using the most widely recognized demographic terminology. An in-depth description of these methods can be found in previous United Nations publications (United Nations, 1983, 1988a, 1988b and 1990).

Surveys are often the source of the most recent demographic information for developing countries. Since the 1970s, there have been several multinational survey programmes whose results provide key information about fertility or mortality in a number of countries. The Demographic and Health Surveys Programme (DHS), which started in 1984, and under whose auspices more than 170 surveys in 70 countries have been carried out in Africa, Asia and Latin America and the Caribbean, has proven to be a great source of information. The key results of the surveys conducted under the DHS Programme are normally published in national reports. In addition, special tabulations of the survey data are available in most cases. When any of those sources of information was consulted in preparing the population estimates and projections for a country, the text below states the name of the country, the acronym DHS and the year to which the survey refers. National reports as well as any other data emanating from the DHS surveys can be obtained from ORC Macro, the institution coordinating the survey programme.[1] It should be noted that several countries use different names or acronyms for their national reports and that in a few cases, countries have produced so-called Demographic and Health Surveys without the direct collaboration of ORC Macro. Prior to 1984, that is from 1972 to 1984, the World Fertility Survey (WFS) programme, the predecessor of the current DHS programme, has also been an important source of information for the estimates included in the *2002 Revision*.

Another survey programme has been carried out by the Pan Arab Project for Child Development (PAPCHILD) of the League of Arab States, working in collaboration with several international agencies. Its purpose was to gather information on the determinants of maternal and child health in Arab countries. The main results of the PAPCHILD surveys are normally included in national reports published by the countries undertaking such survey. In the present volume, when results of such surveys were used in preparing the population estimates and projections of a country, they are identified by the name of the country, the acronym PAPCHILD and the year to which the survey refers. The Pan Arab Project for Family Health (PAPFAM) and Gulf Family Health Survey (GFHS) continue the task initiated by the PAPCHILD programme.

During the 1990s, UNICEF embarked on a process of helping countries assess progress for children at end-decade in relation to the *World Summit for Children* goals, held in 1990 (see UNICEF, 1991). Since then, two rounds of Multiple Indicator Cluster Surveys have been carried out (MICS and MICS-2) that collected and estimated, inter alia, information on infant and child mortality. The mid-decade assessment led to 100 countries collecting data using the Multiple Indicator Cluster Surveys (MICS), household surveys developed to obtain specific mid-decade data, or via MICS questionnaire modules carried by other surveys. By 1996, 60 developing countries had carried out stand-alone MICS, and another 40 had incorporated some of the MICS modules into other surveys. In the second phase of their data collection process, the so-called end-decade assessment, the list of countries participating in the programme was extended.[2]

Finally, in preparing the *2002 Revision*, demographic information as produced by other United Nations agencies or bodies, such as: the Economic and Social Commissions for Asia and the Pacific (ESCAP), for Latin America and the Caribbean (ECLAC/CELADE) and for Western Asia (ESCWA), as well as the United Nations High Commissioner for Refugees (UNHCR), the United Nations Children's Fund (UNICEF) and the World Health Organization (WHO), was also used or considered. Data from regional organizations such as the Statistical Office of the European Communities (EUROSTAT), the *Institut National de la Statistique et des Études Économiques* (INSEE) and the *Centre d'Études et de Recherche sur la Population et le Développement* (CERPOD), have also been consulted.

AFGHANISTAN

Total population (2000): Estimated to be consistent with the 1979 census adjusted upward for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration. There is considerable uncertainty about the size of the population in 1979 because the census enumerated only the settled population and the number of nomads, reported to be of about 2 million at the time, is not exactly known.

Total fertility: Based on: (a) the 1979 census data on births occurring in the 12 months prior to the census classified by age of mother, and (b) data on children ever born classified by age of mother and births in the previous 12 months classified by age of mother from the 1972-1973 Afghanistan Demographic Survey.

Infant mortality: Based on data on births and infant deaths in the past 12 months from the 1979 census, adjusted for underreporting, and on under-five mortality derived from data on children ever born and surviving produced by the 1972-1973 Afghanistan Demographic Survey using the South model of the Coale-Demeny Model Life Tables.

Life expectancy at birth: Based on a life-table, calculated from adjusted deaths in the past 12 months by age and sex, and the population by age and sex from the 1979 census and on the implied expectation of life at birth derived from estimates of under-five mortality from data on children ever born and surviving produced by the 1972-1973 Afghanistan Demographic Survey.

International migration: Based on UNHCR statistics on the number of Afghan refugees in the main countries of asylum (Pakistan, India and Iran) and on assumptions about the subsequent return of refugees.

ALBANIA

Total population (2000): Estimated to be consistent with the 1989 census adjusted upward by 0.7 per cent for males and 1.3 per cent for females and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on the number of births registered through 1990 classified by age of mother and estimated total fertility trends provided by the Council of Europe for the years 1980-1999.

Infant mortality: Based on births and infant deaths registered through 1998.

Life expectancy at birth: Based on a life-table for 1988-1990 calculated from registered deaths by age and sex, and on observed trends in infant and child mortality. Adjustments were made for underreporting of deaths in infancy and at older ages.

International migration: After 1990, based on estimates of immigration of Albanians to Greece, Italy and the rest of Europe. For the future, emigration of Albanians is expected to continue but at lower levels.

ALGERIA

Total population (2000): Estimated to be consistent with the 1998 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on maternity-history data for 1987-1992 from the 1992 PAPCHILD Survey of Algeria, and on births registered for the period 1985-1996.

Infant mortality: Based on: (a) the infant mortality derived from an official national life-table for 1985, consistent with the results of the 1986 Fertility Survey, and (b) trends in infant mortality derived from births and infant deaths registered between 1985 and 2000.

Life expectancy at birth: Based on the official national life-table for 1985, and on a trend in life expectancy since then derived from the number of deaths registered through 2000.

International migration: Based on data on the number of Algerians admitted by France, on estimates of emigration of Algerians to other Arab countries and on UNHCR statistics on the number of refugees in Algeria.

AMERICAN SAMOA

Total population (2000): Estimated to be consistent with the 2000 census and the assumed subsequent trend in the growth rate of the population.

ANDORRA

Total population (2000): Estimated to be consistent with official population estimates for 1984-2001 and the assumed subsequent trend in the growth rate of the population.

ANGOLA

Total population (2000): Estimated to be consistent with the 1970 census adjusted upward for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on data on children ever born and births in the preceding 12 months classified by age of mother from the 1940 and 1950 national censuses and from the 1983 census of the province of Luanda.

Infant mortality: Derived from estimates yielded by the 2001 Inquérito de Indicadores Múltiplos (MICS-2), and estimates from UNICEF and WHO. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).

International migration: Based on the number of Angolan refugees in neighbouring countries and of refugees from other countries in Angola as indicated by the historical database on the refugee stock maintained by UNHCR. It is assumed that all Angolan refugees will return to Angola by 2010.

ANGUILLA

Total population (2000): Estimated to be consistent with the 2001 census and the assumed trend in the growth rate of the population.

ANTIGUA AND BARBUDA

Total population (2000): Estimated to be consistent with the 1991 census, an official population estimate for 1996 and the assumed subsequent trend in the growth rate of the population.

ARGENTINA

Total population (2000): Estimated to be consistent with the 1991 census adjusted upward by 0.9 per cent and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on registered births classified by age of mother through 1998.

Infant mortality: Based on: (a) births and infant deaths registered through 1998, and (b) estimates of mortality in childhood for the period 1987-1989 derived from data on children even born and children surviving classified by age of mother from the 1991 census.

Life expectancy at birth: Based on a life-table for 1990-1992 calculated from registered deaths classified by age and sex for the period 1990-1992 and the 1991 census population by age and sex.

International migration: Based on net international migration estimates derived from border statistics and other administrative records.

ARMENIA

Total population (2000): Estimated to be consistent with the 1989 census adjusted to reflect the de facto population, the preliminary total de facto population from the 2001 census and with estimates of trends in fertility, mortality and international migration.

Total fertility: Based on registered births classified by age of mother through 1998, and the 2000 Armenia DHS.

Infant mortality: Based on births and infant deaths registered through 2000.

Life expectancy at birth: Based on an official life table for 1997-1998, adjusted for underreported old-age mortality.
International migration: Based on official survey findings on external migration through 1998.

ARUBA

Total population (2000): Estimated to be consistent with the 1991 census, an official population estimate for 1999 and the assumed subsequent trend in the growth rate of the population.

AUSTRALIA[3]

Total population (2000): Estimated to be consistent with the 2001 census and with estimates of trends in fertility, mortality and international migration.
Total fertility: Based on official registration data of births by age of mother through 2000.
Infant mortality: Based on births and infant deaths registered through 2000.
Life expectancy at birth: Based on an official 1998-2000 life table.
International migration: Based on reported number of long-term and permanent arrivals and departures by age and sex through 2000.

AUSTRIA

Total population (2000): Estimated to be consistent with the 1991 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on births registered through 2000 classified by age of mother.
Infant mortality: Based on births and infant deaths registered through 1998.
Life expectancy at birth: Based on deaths registered through 1998 classified by age and sex and the underlying population by age and sex.
International migration: Based on registered net international migration for 1996-1998.

AZERBAIJAN

Total population (2000): Estimated to be consistent with the 1989 census, with preliminary results of the 1999 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on births registered through 2000 classified by age of mother.
Infant mortality: Based on births and infant deaths registered through 2000, adjusted by a factor of 1.25 to compensate for the infant deaths omitted owing to the use of a definition of infant death that does not conform to international standards.
Life expectancy at birth: Based on deaths registered through 2000 classified by age and sex, and on the underlying population by age and sex.
International migration: Based on official estimates of international migration through 1999.

BAHAMAS

Total population (2000): Estimated to be consistent with the 2000 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on births registered through 1999.
Infant mortality: Based on births and infant deaths registered through 1999. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
Life expectancy at birth: Based on a life-table for 1990, calculated from deaths registered by age and sex and the 1990 population by age and sex. Total deaths registered through 1999 were also taken into account. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Based on estimates of net international migration since 1990 derived from data inflows and outflows during the year preceding the 1991 census and information on persons born in the Bahamas admitted by the United States of America.

BAHRAIN

Total population (2000): Estimated to be consistent with the 2001 census and with estimates of trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data for the period 1991-1995 from the 1995 Bahrain Family Health Survey and estimates from ESCWA.
Infant mortality: Based on births and infant deaths registered through 1995.
Life expectancy at birth: Based on deaths registered through 1995 by age and sex and the underlying population by age and sex.
International migration: Based on estimates of net international migration derived as the difference

between overall population growth and natural increase during the 1991-2001 intercensal period.

BANGLADESH

Total population (2000): Estimated to be consistent with the age distribution of the 1991 census adjusted using the Demeny-Shorter method by comparison with the 1981 census age distribution and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data for 1997-1999 derived from the 1999-2000 Bangladesh DHS.
Infant mortality: Based on data on births and infant deaths over the period 1995-1999 obtained from the maternity-history data of the 1999-2000 Bangladesh DHS and from the Bangladesh Sample Registration System, 1999.
Life expectancy at birth: Based on a life-table for 1987 calculated from sex and age-specific death rates from the Bangladesh Sample Registration System and estimates of life expectancy at birth through 1998 provided by the Sample Registration System.
International migration: Based on data on persons originating in Bangladesh and migrating to selected developed countries, from the number of persons born in Bangladesh enumerated by the censuses of India and from information on the number of workers receiving clearances to work abroad.

BARBADOS

Total population (2000): Estimated to be consistent with the 1990 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on births registered through 1988 classified by age of mother and total births registered through 2000.
Infant mortality: Based on births and infant deaths registered through 2000.
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables. Estimates are consistent with total deaths registered through 2000.
International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase during the 1980-1990 intercensal period, and assumed subsequent trends. A low and constant level of emigration was assumed from 2000 to 2050.

BELARUS

Total population (2000): Estimated to be consistent with the 1999 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on official total fertility estimates through 2000.
Infant mortality: Based on births and infant deaths registered through 2000, adjusted by a factor of 1.125 prior to 1995 and by 1.08 for 1995 and on, to compensate for infant deaths omitted owing to the use of a definition of infant death that does not conform to international standards.
Life expectancy at birth: Based on an official life table for 1997-1998.
International migration: Based on official estimates of net international migration available through 2000.

BELGIUM

Total population (2000): Estimated to be consistent with the 1991 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on official total fertility estimates through 2000.
Infant mortality: Based on births and infant deaths registered through 1998.
Life expectancy at birth: Based on an official life table for 1995-1997.
International migration: Based on official estimates of international migration by sex through 1998.

BELIZE

Total population (2000): Estimated to be consistent with the 1991 census adjusted upward for underenumeration, the preliminary total population from the 2000 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on births registered through 2000, adjusted for under-registration.
Infant mortality: Based on births and infant deaths registered through 2000, adjusted for under-registration. The demographic impact of AIDS has

been factored into the mortality estimates (see chapter VI).

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the Latin American model of the United Nations Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).

International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase during the 1991-2000 intercensal period.

BENIN

Total population (2000): Estimated to be consistent with the 1992 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on: (a) births in the 12 months preceding the 1992 census, and (b) maternity-history data from the 1996 and 2001 Benin DHS.

Infant mortality: Based on: (a) an analysis of the 1961 Demographic Survey, (b) the results of the 1981-1983 multi-round survey (Enquête Nationale Démographique), and (c) estimates of child mortality obtained from maternity-history data from the 1996 and 2001 Benin DHS. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).

International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase during the 1979-1992 intercensal period, and on information on the number of citizens of Benin enumerated in neighboring countries.

BERMUDA

Total population (2000): Estimated to be consistent with the 1991 census and the assumed subsequent trend in the growth rate of the population.

BHUTAN

Total population (2000): Estimated to be consistent with the 1969 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Derived from estimates yielded by the 1984 Demographic Sample Survey and the 1994 Health Sample Survey.

Infant mortality: Based on estimates produced by the 1984 Demographic Sample Survey and the 1994 Health Sample Survey.

Life expectancy at birth: Derived from values of life expectancy at birth for the period 1950-1985 provided by the Central Statistical Office, modified so as to ensure consistency with reported changes in population size over time. For the early 1990s, results from the 1994 National Health Survey allowed the estimation of child and adult mortality, providing the basis for the selection of the North model of the Coale-Demeny Model Life Tables as the best approximation to the experience of Bhutan.

International migration: Based on UNHCR data on movements of refugees.

BOLIVIA

Total population (2000): Estimated to be consistent with the 2001 census adjusted upward by 4.3 per cent and with estimates of trends in fertility, mortality and international migration.

Total fertility: Based on maternity-history data for 1989-1994 from the 1994 Bolivia DHS and for 1995-1998 from the 1998 Bolivia DHS. Also considered were estimates derived from reverse projection of the 2001 census and from births in the last year and parity reports from the 2001 census.

Infant mortality: Based on data on children ever born and surviving classified by age of mother from the 1988 Encuesta Nacional de Población y Vivienda, the 1989 Bolivia DHS, the 1992 census, the 1994 Bolivia DHS and the 1998 Bolivia DHS. Direct estimates from the last two sources were also considered.

Life expectancy at birth: Based on a life-table estimated on the basis of: (a) data on maternal orphanhood for 1974-1981 from in the 1988 Encuesta Nacional de Población y Vivienda (ENPV); (b) deaths by age and sex referring to 1991 from the 1992 census, (c) deaths by age and sex referring to 2000-2001 from the 2001 census, and (d) estimates of infant and child mortality.

International migration: Based on estimated net international migration for the intercensal period 1992-2001 and taking into account the number of persons born in Bolivia and enumerated by other censuses in the Americas.

BOSNIA AND HERZEGOVINA

Total population (2000): Estimated to be consistent with the 1981 census, adjusted to show the de facto population, and with estimates of the subsequent trends in fertility, mortality and international migration. The results of the 1991 census were also considered.
Total fertility: Based on official total fertility estimates through 1998.
Infant mortality: Based on births and infant deaths registered through 1998.
Life expectancy at birth: Based on official estimates of life expectancy at birth for 1988-1989. The age pattern of mortality was derived from an official life table for 1988-1989.
International migration: Based on statistics on the number of refugees and asylum-seekers from Bosnia and Herzegovina in other European countries as reported by UNCHR.

BOTSWANA

Total population (2000): Estimated to be consistent with the 1991 census adjusted upward for underenumeration, the preliminary results of the 2001 census and with estimates of trends in fertility, mortality and international migration.
Total fertility: Based on: (a) data on children ever born from the 1991 census and (b) maternity-history data from the 1988 Family Health Survey II.
Infant mortality: Based on: (a) data on children ever born and surviving classified by age of mother from the 1991 census, (b) data on children ever born and surviving classified by age of mother from the 1988 Family Health Survey II, and (c) estimates from UNICEF. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Based on refugee statistics compiled by UNHCR and on data on the number of migrant workers in South Africa.

BRAZIL

Total population (2000): Estimated to be consistent with the 2000 census adjusted upward for underenumeration and with estimates of trends in fertility, mortality and international migration.
Total fertility: Based on: (a) births registered through 1993 classified by age of mother; (b) data on fertility from the 1992, 1993, 1995 and 1996 Pesquisa Nacional por Amostra de Domicilios (PNAD), (c) data on fertility from the 1996 Brazil DHS, and a comparison of the population under 20 yielded by the estimated total fertility and that enumerated in the 2000 Census.
Infant mortality: Based on data on children ever born and surviving classified by age of mother from the 1989, 1990 and 1996 Pesquisa Nacional por Amostra de Domicilios (PNAD). The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
Life expectancy at birth: Based on a life-table for 1990-1992 estimated from: (a) registered births and deaths by age and sex for 1990-1992 (adjusted for under-registration by using the growth-balance equation method) and the 1991 census population by age and sex; and (b) estimates of infant and child mortality through 1988 (see below). The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase during the 1980-2000 intercensal period.

BRITISH VIRGIN ISLANDS

Total population (2000): Estimated to be consistent with the 1991 census, an official population estimate for 1996 and the assumed subsequent trend in the growth rate of the population.

BRUNEI DARUSSALAM

Total population (2000): Estimated to be consistent with the 2001 census and with estimates of trends in fertility, mortality and international migration.
Total fertility: Based on live births by age of mother through 1998.
Infant mortality: Based on births and infant deaths registered through 2000.
Life expectancy at birth: Based on a life table constructed from registered deaths by age and sex of the period 1993-1997, and the estimated underlying population.

International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase during the 1981-1991 intercensal period, and assumed subsequent trends.

BULGARIA

Total population (2000): Estimated to be consistent with the 1992 census, with official estimates for 31 December 1999, and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on official total fertility estimates through 1999.
Infant mortality: Based on the life table for 1995-1997 and estimates from 1960-2000 derived from the 2001 database produced by the Council of Europe.
Life expectancy at birth: Based on annual estimates of expectation of life from 1960 to 2000 derived from the 2001 database produced by the Council of Europe and on official estimates of Bulgaria's national Statistical Institute through 1999. Age pattern of mortality is based on an official life table for the population of Bulgaria referring to 1995-1997.
International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase through 1998.

BURKINA FASO

Total population (2000): Estimated to be consistent with the 1996 census adjusted upward for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history and completed family size data from the 1993 Burkina Faso DHS and the 1998-1999 Burkina Faso DHS.
Infant mortality: Based on maternity-history data from the 1998-1999 Burkina Faso DHS and on estimates provided by Hill et al. (1999). The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Estimated on the basis of the stock of persons from Burkina Faso enumerated in Côte d'Ivoire, taking into account the results of the CERPOD migration surveys and incorporating estimates of refugee flows derived from UNHCR data.

BURUNDI

Total population (2000): Estimated to be consistent with the 1990 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data for the preceding 15 years from the 1987 Burundi DHS.
Infant mortality: Based on a 1990-1995 life-table accounting for the high number of deaths due to the 1993 civil war. The 2000 Enquête Nationale d'Évaluation des Conditions de vie de l'Enfant et de la Femme has also been taken into consideration. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
Life expectancy at birth: Derived from estimates of infant mortality and taking into account the number of deaths due to civil strife. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Based on the historical database on refugee stocks maintained by UNHCR and assuming that the Burundian refugees abroad will return to Burundi during 2000-2010.

CAMBODIA

Total population (2000): Estimated to be consistent with the 1998 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data from the 2000 Cambodia DHS and on the consistency of fertility estimates with population growth between the 1962 and 1998 censuses corrected for the effects of mortality and migration.
Infant mortality: Based on estimates derived from data on children ever born and surviving obtained from the 1998 census, using the West Model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age

pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Based on UNHCR data on movements of refugees between Cambodia and neighboring countries through 2000 and assumed subsequent trends.

CAMEROON

Total population (2000): Estimated to be consistent with the 1987 census adjusted upward for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data from the 1978 Cameroon WFS, the 1991 Cameroon DHS, and the 1998 Cameroon DHS.
Infant mortality: Based on maternity-history data from the 1978 Cameroon WFS, the 1991 Cameroon DHS, and the 1998 Cameroon DHS. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Net international migration was estimated on the basis of UNHCR statistics on refugees.

CANADA

Total population (2000): Estimated to be consistent with the 2001 mid-year population estimate of Statistics Canada and with estimates of trends in fertility, mortality and international migration.
Total fertility: Based on births registered through 1999 classified by age of mother.
Infant mortality: Based on births and infant deaths registered through 1999.
Life expectancy at birth: Based on registered deaths through 1999 and the estimated population classified by age and sex.
International migration: Based on estimates of international migration through 1999.

CAPE VERDE

Total population (2000): Estimated to be consistent with the 1990 census, the preliminary total population from the 2000 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity history data from the 1998 Demographic and Reproductive Health Survey.
Infant mortality: Based on data on children ever born and surviving from the 1998 Demographic and Reproductive Health Survey.
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables. An official estimate of life expectancy at birth by sex for 1990 was also considered.
International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase during the 1980-1990 and 1990-2000 intercensal periods.

CAYMAN ISLANDS

Total population (2000): Estimated to be consistent with the 1989 census and the assumed subsequent trend in the growth rate of the population.

CENTRAL AFRICAN REPUBLIC

Total population (2000): Estimated to be consistent with the 1988 census adjusted upward for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data from the 1994-1995 Central African Republic DHS.
Infant mortality: Based on maternity-history data from the 1994-1995 Central African Republic DHS. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).

International migration: Estimates of net international migration were derived from information on the stock of refugees derived from the historical database maintained by UNHCR. The refugees in the Central African Republic in 1999 were assumed to leave the country by 2005 and citizens of the Central African Republic recognized as refugees in countries of the region were assumed to return to their country by 2005.

CHAD

Total population (2000): Estimated to be consistent with the 1993 census adjusted upward for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data for 1992-1996 from the 1996-1997 Chad DHS.
Infant mortality: Based on maternity-history data from the 1996-1997 Chad DHS. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Based on data on refugees from Chad in neighboring countries and assumed subsequent repatriation trends.

CHANNEL ISLANDS

Total population (2000): Estimated to be consistent with the 2001 census of Jersey and Guernsey and with estimates of trends in fertility, mortality and international migration.
Total fertility: Based on total fertility estimates for 1980-1992 derived from registered births by age of mother and the population of the 1991 census, and on registered births by age of mother through 1999 for Guernsey and through 1994 for Jersey.
Infant mortality: Based on registered births and infant deaths through 1995 for Guernsey and through 1994 for Jersey.
Life expectancy at birth: Based on (a) a life table for 1989-1993 calculated from registered deaths by age and sex and the underlying population, and (b) registered deaths through 1999 for Guernsey and through 1994 for Jersey.
International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase during the 1991-1996 intercensal period.

CHILE

Total population (2000): Estimated to be consistent with the 1992 census adjusted upward by 1.1 per cent and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on: (a) births registered through 1996 classified by age of mother, and (b) data from the 1992 census on births in the 12 months preceding enumeration classified by age of mother. The estimated total fertility for 1995-2000 was found to be consistent with births registered during 1997-1998
Infant mortality: Based on births and infant deaths registered through 1996, on estimates derived from the 1992 census and validated by comparison with estimates derived from vital statistics for 1997-1998.
Life expectancy at birth: Based on a life-table for 1991-1992 constructed from registered deaths by age and sex for the period 1991-1992 and the population by age and sex from the 1992 census.
International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase during each intercensal period.

CHINA[4]

Total population (2000): Estimated to be consistent with the 2000 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data from the 1997 China Annual Survey of Population Change.
Infant mortality: Based on retrospective information on births and infant deaths from the 1986 Demographic Change Survey, the 1988 Population Survey and the 1990 census (adjusted for underreporting of female deaths). The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
Life expectancy at birth: Based on an estimated life-table for 1990 calculated for ages 1 and over from 1990 census data on deaths during the previous six months and an estimate of infant

mortality. The level of mortality was estimated taking into account life tables derived from vital registration data for 1990-1994, the results of the 1995 intercensal survey and the annual surveys conducted by the National Bureau of Statistics over the period 1990-1998 assessed for the under-enumeration of deaths. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase during the 1982-1990 intercensal period.

CHINA, HONG KONG SAR[5]

Total population (2000): Estimated to be consistent with the 2001 census and with estimates of trends in fertility, mortality and international migration.
Total fertility: Based on total fertility estimates through 2001 provided by the Census and Statistics Department, Hong Kong.
Infant mortality: Based on births and infant deaths registered through 1997.
Life expectancy at birth: Based on registered deaths by age and sex through 1997 and the underlying population by age and sex.
International migration: Based on estimates given in Hong Kong Population Projections: 1997-2016, Census and Statistics Department, Hong Kong.

CHINA, MACAO SAR[6]

Total population (2000): Estimated to be consistent with the 1991 census adjusted upward by 1.5 per cent and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on births registered in 1996-2000 classified by age of mother and on estimates of the female population by age.
Infant mortality: Derived from estimates of life expectancy at birth assuming that the age pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables. Official estimates of infant mortality from the late 1990s were also considered.
Life expectancy at birth: Based on official estimates of life expectancy at birth derived from registered deaths.
International migration: Based on the inflow of legally admitted migrants, including legal immigrants from China, on the number of foreigners authorized to reside in Macao SAR through 1998 and on the number of migrant workers. The number of migrants with illegal entry into Macao SAR, legalized by the authorities during 1978 and 1991, was also taken into consideration.

COLOMBIA

Total population (2000): Estimated to be consistent with the 1993 census adjusted upward by 11.2 per cent and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on: (a) maternity-history data for 1993-1995 from the 1995 Colombia DHS, and (b) data from the 1993 census on births in the previous year classified by age of mother.
Infant mortality: Based on: (a) maternity-history data for 1990-1995 from the 1995 Colombia DHS; (b) births and infant deaths registered in 1992-1996, and (c) indirect estimates from the 1993 census.
Life expectancy at birth: Based on a 1990-1995 life-table constructed from: (a) registered deaths by age and sex for 1990-1995 adjusted for under-registration by the growth-balance equation method and the 1993 census population by age and sex, and (b) estimates of infant and child mortality.
International migration: Based on the number of Colombians reported by the 1990 censuses of Venezuela and the United States of America and on the difference between overall population growth and natural increase during each intercensal period.

COMOROS

Total population (2000): Estimated to be consistent with the 1991 census of the three islands of the Comoros, with the 1991 census of Mayotte, and with estimates of the subsequent trends in fertility, mortality and international migration. The 1997 census of Mayotte was also taken into consideration.
Total fertility: Based on: (a) data from the 1991 census on children ever born and births in the preceding 12 months, both classified by age of mother, and (b) maternity-history data from the 1996 Comoros DHS.
Infant mortality: Based on estimates for the period 1990-1995 derived from maternity-history data from the 1996 Comoros DHS.
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age

pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables.
International migration: Based on information on emigration from the Comoros and taking into account refugee statistics from UNHCR.

CONGO

Total population (2000): Estimated to be consistent with the 1984 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on data on children ever born and births in the preceding 12 months, both classified by age of mother, from the 1974 and 1984 censuses.
Infant mortality: Based on estimates for the 1970s derived from 1974 census data on children ever born and surviving classified by age of mother and on similar estimates reported by the 1984 census. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Based on data on refugees compiled by UNHCR.

COOK ISLANDS

Total population (2000): Estimated to be consistent with the 2001 census and the assumed trend in the growth rate of the population.

COSTA RICA

Total population (2000): Estimated to be consistent with the 2000 census, adjusted upward by 2.9 per cent on the basis of voter registration, and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on births registered through 2000 classified by age of mother and the results of the 1993 National Survey on Reproductive Health and Family Formation.
Infant mortality: Based on births and infant deaths registered through 2000.
Life expectancy at birth: Based on a life-table for 2000 estimated from: (a) registered deaths by age and sex for 2000 and the 2000 census population by age and sex, and (b) adjusted estimates of infant and child mortality derived from vital registration.
International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase during each intercensal period. In addition, the following information was taken into account: (a) tabulations of births by nationality of mother for1980-1990; (b) data on arrivals and departures of Costa Rican nationals and registration of foreigners for 1987-1996; (c) the number and characteristics of the foreign-born population enumerated in the 1973 and 1984 censuses; and (d) the number and characteristics of Costa Ricans enumerated by the censuses of major receiving countries in the Americas.

CÔTE D'IVOIRE

Total population (2000): Estimated to be consistent with the 1988 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on: (a) data from the 1988 census on births in the preceding 12 months classified by age of mother, and (b) maternity-history data from the 1994 and 1998-1999 DHS.
Infant mortality: Based on: (a) data on children ever born and surviving classified by age of mother from the 1988 census, and (b) maternity-history data from the 1994 and 1998-1999 DHS. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Based on: (a) statistics on refugees compiled by UNHCR; (b) the stock of foreigners enumerated by the censuses of Côte d'Ivoire; (c) the number of migrants originating in Côte d'Ivoire according to the statistics of developed countries; (d) the results of the migration surveys conducted by CERPOD (Enquête REMUAO).

CROATIA

Total population (2000): Estimated to be consistent with the 2001 census and with estimates of trends in fertility, mortality and international migration.

Total fertility: Based on births registered through 2000 classified by age of mother.
Infant mortality: Based on births and infant deaths registered through 2000.
Life expectancy at birth: Based on reported deaths registered through 1997 by age and sex and the underlying population by age and sex, adjusted for under-reporting.
International migration: Based on the estimated number of refugees entering Croatia from Bosnia-Herzegovina and Yugoslavia, and the number of persons leaving Croatia and entering other European countries and countries of immigration overseas.

CUBA

Total population (2000): Estimated to be consistent with the 1981 census adjusted upward by 0.8 per cent and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on births registered through 1995 classified by age of mother.
Infant mortality: Based on births and infant deaths registered through 1999.
Life expectancy at birth: Based on deaths registered through 1999 classified by age and sex and on the underlying population by age and sex.
International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase during each intercensal period. In addition, the number and characteristics of Cuban enumerated by the censuses of major receiving countries in the Americas and the number of Cuban immigrants received by the United States of America were taken into account.

CYPRUS

Total population (2000): Estimated to be consistent with the 2001 census and with estimates of trends in fertility, mortality and international migration.
Total fertility: Based on births registered through 2000 classified by age of mother.
Infant mortality: Based on births and infant deaths registered through 2000.
Life expectancy at birth: Based on an official 1998-1999 life table.
International migration: Based on information regarding the inflow of temporary workers during 1990-1993 and an official estimate of immigration for 1998.

CZECH REPUBLIC

Total population (2000): Estimated to be consistent with the 1991 census, the preliminary results of the 2001 census and 2000 official population estimates, and with estimates of trends in fertility, mortality and international migration.
Total fertility: Based on official estimates of total fertility through 2000.
Infant mortality: Based on births and infant deaths registered through 1998.
Life expectancy at birth: Based on an official life table for the 1998-1999 time period and estimates provided by the Council of Europe.
International migration: Based on official estimates of net international migration through 2000.

DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA

Total population (2000): Estimated to be consistent with the 1993 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on: (a) births in the 12 months preceding the 1993 census, and (b) estimates of total fertility so that they are consistent with the age distribution of the population as enumerated by the 1993 census (that is, use of the total fertility estimates for the past produces the age distribution recorded by the 1993 census adjusted for under-enumeration).
Infant mortality: Derived from estimates of life expectancy at birth by assuming that the age pattern of mortality conforms to the Far Eastern model of the United Nations Model Life Tables.
Life expectancy at birth: Based on official estimates of life expectancy at birth adjusted for under- registration.
International migration: Net international migration was assumed to be zero except in 1950-1955.

DEMOCRATIC REPUBLIC OF THE CONGO

Total population (2000): Estimated to be consistent with the 1984 census adjusted upward for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on data on children ever born classified by age of mother from the 1984 census.

Infant mortality: Based on a 1972 estimate based on data on children ever born and surviving from the Demographic Survey of Western Zaire conducted in 1974-1977 and a 1992 estimate from the 1995 Enquête Nationale sur la Situation des Enfants et des Femmes au Zaïre (MICS). A 1984 census estimate was also considered. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. The unusual numbers of deaths due to war in the late 1990s were also taken into account. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Based on UNHCR data on the number of refugees.

DEMOCRATIC REPUBLIC OF TIMOR-LESTE

Total population (2000): Estimated to be consistent with the 1990 census, the 1995 Indonesian Intercensal Population Survey and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: In the absence of statistics indicative of fertility levels and trends, total fertility was assumed to have levels and follow trends similar to those estimated for neighbouring countries with similar socio-economic conditions as those of the Democratic Republic of Timor-Leste.
Infant mortality: Based on an official estimate for 1985-1990 produced by the Government of Indonesia.
Life expectancy at birth: Based on an official estimate for 1985-1990 produced by the Government of Indonesia.
International migration: Based on estimated international migration during 1990-1995 and on data on refugees and repatriations from UNHCR.

DENMARK

Total population (2000): Estimated to be consistent with the official estimate for 1 January 1995 and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on official total fertility estimates through 2000.
Infant mortality: Based on births and infant deaths registered through 1998.
Life expectancy at birth: Based on an official life table for 1997-1998.
International migration: Based on official estimates of international migration through 1998.

DJIBOUTI

Total population (2000): Estimated to be consistent with the 1983 census and the 1991 Intercensal Demographic Survey and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on data on children ever born and births during the last 12 months classified by age of mother from the 1991 Intercensal Demographic Survey.
Infant mortality: Based on data on children ever born and surviving classified by age of mother from the 1989 Child Mortality Survey and estimates from UNICEF. Results from the 1991 Intercensal Demographic Survey were also considered. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
Life expectancy at birth: Derived from estimates of infant mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Based on the historical database on refugee stocks maintained by UNHCR and on reports of additional migration flows of persons not qualifying as refugees. Projected migration is based on the assumption that refugees in Djibouti will return to their countries of origin by 2010 and that persons who migrated to Djibouti as a result of conflict in their countries will return to them by 2020.

DOMINICA

Total population (2000): Estimated to be consistent with the 1991 census, official population estimates for 1995 and 1998 and the assumed subsequent trend in the growth rate of the population.

DOMINICAN REPUBLIC

Total population (2000): Estimated to be consistent with the 1993 census adjusted upward for

underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data for 1993-1996 from the 1996 Encuesta Demográfica y de Salud (ENDESA/DHS).
Infant mortality: Based on data on children ever born and surviving classified by age of mother from the 1986, 1991 and 1996 Dominican Republic DHS (ENDESA). The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
Life expectancy at birth: Based on estimates of adult mortality derived from maternal orphanhood reports in the 1996 Dominican Republic DHS (ENDESA) and on estimates of mortality in childhood from the same source. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Based on information on immigrants to the United States of America, the stock of Dominican migrants in the United States (from censuses and the Current Population Survey) and information on international migration provided by the 1991 Dominican Republic DHS.

ECUADOR

Total population (2000): Estimated to be consistent with the 2001 census adjusted upward by 6.8 per cent and with estimates of trends in fertility, mortality and international migration.
Total fertility: Based on: (a) births registered through 1995; (b) maternity-history data and data on children ever born classified by age of mother from the 1989 Encuesta Demográfica y de Salud Materna e Infantil (ENDEMAIN), and (c) data on births in the preceding 12 months classified by age of mother, data on women with at least one child by five-year age group, and data on first births during the preceding year by five-year age group of mother from the 1990 census.
Infant mortality: Based on: (a) births and infant deaths registered through 1995, and (b) data on children ever born and surviving classified by age of mother from the 1982 and 1990 censuses.
Life expectancy at birth: Based on a life-table for 1989-1991 estimated from: (a) registered deaths by age and sex for 1989-1991 adjusted for under-registration by growth-balance techniques and the 1990 census population by age and sex, and (b) estimates of infant and child mortality.
International migration: Net international migration for the period 1990-2000 was estimated on the basis of information on Ecuadorians abroad, mainly those enumerated in Spain and the United States of America.

EGYPT

Total population (2000): Estimated to be consistent with the 1996 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on: (a) estimates for the period 1983-1998 derived from maternity-history data from the 1988, 1992, 1995 and 2000 Egypt DHS and from the 1991 PAPCHILD Survey of Egypt; and (b) births registered through 1994 classified by age of mother.
Infant mortality: Based on data on children ever born and surviving classified by age of mother from the 1995 and 2000 Egypt DHS, and estimates from UNICEF.
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the East model of the Coale-Demeny Model Life Tables. Estimates from the 1996 census and WHO were also considered.
International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase during the 1986-1996 intercensal period.

EL SALVADOR

Total population (2000): Estimated to be consistent with the 1992 census adjusted upward by 4.4 per cent and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on estimates for 1991-1993 calculated from: (a) data on children ever born classified by age of mother and data on births in the preceding 12 months classified by age of mother, from the 1992 census (b) births registered classified by age of mother through 1993. Estimates for later periods were compared with those yielded by the Encuesta Nacional de Salud Familiar (FESAL-98) and were found to be consistent with the latter.
Infant mortality: Based on data on children ever born and surviving classified by age of mother for 1988-1993 from FESAL-93. Also taken into account were the results of FESAL-98.

Life expectancy at birth: Based on a 1991-1993 life-table calculated from: (a) registered deaths by age and sex for 1991-1993 adjusted for under-registration with the growth balance technique and the 1992 census population by age and sex, and (b) estimates of infant and child mortality.
International migration: Based on estimates of international migration produced by research institutions in El Salvador and on refugee data from UNHCR.

EQUATORIAL GUINEA

Total population (2000): Estimated to be consistent with the 1983 census adjusted upward for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration. Results of the 1994 census were also considered.
Total fertility: Based on data on children ever born classified by age of mother and date of birth of last child from the 1983 census.
Infant mortality: Based on data on children ever born and surviving classified by age of mother from the 1983 census. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Estimated to be consistent with refugee flows as derived from the UNHCR historical database.

ERITREA

Total population (2000): Estimated to be consistent with the results relative to Eritrea from the 1984 Population and Housing Census of Ethiopia and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data for 1992-1995 from the 1995 Eritrea DHS.
Infant mortality: Based on data on children ever born and surviving classified by age of mother from the 1995 Eritrea DHS and estimates from UNICEF. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the Far Eastern model of the United Nations Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Based on data on refugee movements between Eritrea and neighbouring countries derived from the database maintained by UNHCR.

ESTONIA

Total population (2000): Estimated to be consistent with the 2000 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on total fertility estimates published by the Council of Europe and derived from registered births by age of mother available up to 2000.
Infant mortality: Based on births and infant deaths registered through 2000, adjusted upward through 1994 by a factor of 1.25 to compensate for infant deaths omitted owing to the use of a definition of infant death that did not conform to international standards.
Life expectancy at birth: Based on official estimates of life expectancy by sex available through 2000. The age pattern of mortality was derived from an official life table for the year 1996.
International migration: Based on official national estimates of international migration through 2000.

ETHIOPIA

Total population (2000): Estimated to be consistent with the 1994 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on data on births during the past 12 months classified by age of mother from the 1984 census and 1994 census and from results of the 2000 Ethiopia DHS adjusted upwards by applying the P/F ratio method.
Infant mortality: Based on: (a) data on children ever born and surviving classified by age of mother from the 1990 Family and Fertility Survey and the 2000 Ethiopia DHS, and (b) estimates from UNICEF. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Based on data on refugee movements between Ethiopia and neighbouring countries derived from the database maintained by UNHCR.

FAEROE ISLANDS

Total population (2000): Estimated to be consistent with the 1977 census, official population estimates produced by the national statistical office of Denmark for 1987-1999 and the assumed subsequent trend in the growth rate of the population.

FALKLAND ISLANDS (MALVINAS)

Total population (2000): Estimated to be consistent with the 1996 census and the assumed subsequent trend in the growth rate of the population.

FIJI

Total population (2000): Estimated to be consistent with the 1996 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on the analysis of the 1986 and 1996 census results, and on the application of the own-children method and the P/F ratio method to the results of the 1986 and 1996 censuses.
Infant mortality: Based on: (a) data on children ever born and children surviving by age of mother from the 1996 census, and (b) the number of registered births by sex and infant deaths by age and sex for 1995-1997.
Life expectancy at birth: Based on a life table calculated from registered deaths by age and sex for 1995-1997, and the underlying population by age and sex, smoothed by assuming that the age pattern of mortality conforms to the Far Eastern model of the United Nations Model Life Tables.
International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase during the 1986-1996 intercensal period.

FINLAND

Total population (2000): Estimated to be consistent with the 1995 census, with official estimates of the population referring to 1 January 1995 and 1996, and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on official total fertility estimates through 2000.
Infant mortality: Based on births and infant deaths registered through 1999.
Life expectancy at birth: Based on official estimates of life expectancy derived from registered deaths and available through 1998. The age pattern of mortality was obtained from an official 1998 life table.
International migration: Based on official estimates of net international migration through 1998 published by Eurostat.

FRANCE

Total population (2000): Estimated to be consistent with the 1990 census and with estimates of the subsequent trends in fertility, mortality and international migration. The results of the 1999 census were also considered. Population estimates exclude the overseas departments, namely, French Guiana, Guadeloupe, Martinique and Réunion.
Total fertility: Based on official total fertility estimates available through 2000.
Infant mortality: Based on births and infant deaths registered through 1999.
Life expectancy at birth: Based on an official life table for 1999 calculated from registered deaths and the provisional results of the 1999 census.
International migration: Based on official estimates of net international migration through 1998.

FRENCH GUIANA

Total population (2000): Estimated to be consistent with the 1999 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on official estimates of total fertility through 2000.
Infant mortality: Based on registered births and infant deaths through 1997.
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age

pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables. Registered deaths through 1997 were also taken into account.
International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase during the 1990-1999 intercensal period.

FRENCH POLYNESIA

Total population (2000): Estimated to be consistent with the 1996 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on births registered through 1999 classified by age of mother.
Infant mortality: Based on registered births and infant deaths through 1999.
Life expectancy at birth: Based on official estimates of life expectancy at birth derived from registered deaths through 1996.
International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase through 1995. As of 1995-2000, net international migration was assumed to be zero.

GABON

Total population (2000): Estimated to be consistent with the provisional results of the 1993 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity history data from the 2000 Gabon DHS.
Infant mortality: Based on data on children ever born and surviving from the 2000 Gabon DHS. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase during the 1970-1993 intercensal period.

GAMBIA

Total population (2000): Estimated to be consistent with the total population enumerated by the 1993 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on estimates from the 1990 Contraceptive Prevalence Survey and data on births in the past year from the 1993 census.
Infant mortality: Based on data on children ever born and surviving classified by age of mother from the 1993 census and the 2000 Gambia MICS. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to a North model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase during the 1983-1993 intercensal period.

GEORGIA

Total population (2000): Estimated to be consistent with the 1989 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on official estimates of total fertility through 2000.
Infant mortality: Based on births and infant deaths registered through 2000, adjusted upward through 1991 by a factor of 1.25 to compensate for infant deaths omitted owing to the use of a definition of infant death that does not conform to international standards.
Life expectancy at birth: Based on official life table for 1990, with adjusted infant mortality.
International migration: Based on official statistics on international migration through 2000 and estimates of refugee flows and illegal migration.

GERMANY

Total population (2000): Estimated to be consistent with the January 2000 population estimate and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on official total fertility estimates available through 2000.
Infant mortality: Based on births and infant deaths registered through 1999.

Life expectancy at birth: Based on official estimates of life expectancy available through 2000.
International migration: Based on net international migration estimates derived from flow statistics available through 2000.

GHANA
Total population (2000): Estimated to be consistent with the 2000 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data from the 1979-1980 Ghana WFS and the 1988, 1993 and 1998 Ghana DHS.
Infant mortality: Based on data on children ever born and surviving classified by age of mother from the 1968-1969 National Demographic Survey, the 1979-1980 Ghana WFS, and the 1988, 1993 and 1998 Ghana DHS. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Based on the inflow and outflow of refugees as indicated by the UNHCR historical database on the stock of refugees and on the number of Ghanaians migrating to selected developed countries.

GIBRALTAR
Total population (2000): Estimated to be consistent with the 1991 census, an official population estimate for 1997 and the assumed subsequent trend in the growth rate of the population.

GREECE
Total population (2000): Estimated to be consistent with the 1991 census, the preliminary results of the 2001 census and with estimates of trends in fertility, mortality and international migration.
Total fertility: Based on official estimates of total fertility available through 1999.
Infant mortality: Based on infant deaths and births registered through 1999.
Life expectancy at birth: Based on official estimates of life expectancy available through 1999. The age pattern of mortality is based on an official life table for 1998.
International migration: Based on official estimates of net international migration through 2000.

GREENLAND
Total population (2000): Estimated to be consistent with the 1976 census count, official population estimates produced by the national statistical office of Denmark for 1980-2001 and the assumed trend in the growth rate of the population.

GRENADA
Total population (2000): Estimated to be consistent with the 1991 census, an official population estimate for 1995 and the assumed subsequent trend in the growth rate of the population.

GUADELOUPE
Total population (2000): Estimated to be consistent with the 1999 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on official estimates of total fertility available through 2000.
Infant mortality: Based on births and infant deaths registered through 1997.
Life expectancy at birth: Based on a life-table for 1990 calculated from registered deaths by age and sex and the 1990 mid-year population by age and sex, and on the trends implied by estimates of life expectancy available for 1996 and 1997.
International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase during the 1982-1990 and 1990-1999 intercensal periods.

GUAM
Total population (2000): Estimated to be consistent with the 2000 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on births registered through 2000 classified by age of mother, adjusted downward to account for births to non-resident women in Guam hospitals and to be consistent with children under 5 enumerated in the 2000 census.
Infant mortality: Based on registered births and infant deaths through 2000.

Life expectancy at birth: Based on a 1990 life-table derived from average number of registered deaths by age and sex of the years 1988-1992 and the 1990 census population by age and sex, and on the trends implied by the number of deaths registered through 2000.

International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase during the 1990-2000 intercensal period. Data on the reduction in the number of military personnel and their dependants were also taken into account.

GUATEMALA

Total population (2000): Estimated to be consistent with the preliminary results of the 1994 census, adjusted upward by 13.8 per cent, and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on estimates for the period 1986-1995 derived from: (a) data on children ever born and births during the 12 months preceding interview, classified by age of mother, from the 1987 and the 1995 Encuestas Nacionales de Salud Materno Infantil (ENSMI), the 1987and 1989 Encuestas Nacionales Socio-demográficas (ENSD), and the 1994 census; and (b) data on women with at least one child by five-year age group and data on first births in a year classified by five-year age group of mother from the same survey sources.

Infant mortality: Based on data on children ever born and surviving classified by age of mother from the 1987 and 1995 Encuestas Nacionales de Salud Materno Infantil (ENSMI), the 1987 and 1989 Encuestas Nacionales Socio-demográficas (ENSD) and the 1994 census.

Life expectancy at birth: Based on a series of life tables for the period 1950-1993 calculated from registered deaths. The most recent life table is calculated from registered deaths by age and sex for 1990-1993 and estimates of infant and child mortality through 1993.

International migration: Based on estimates derived from the number and characteristics of Guatemalans enumerated by the censuses of Costa Rica, Honduras, Mexico and the United States of America.

GUINEA

Total population (2000): Estimated to be consistent with the 1996 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on maternity-history data from the 1992 Guinea DHS and from the 1999 Guinea DHS.

Infant mortality: Based on maternity-history data and on data on children ever born and surviving classified by age of mother from the 1992 and 1999 Guinea DHS. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).

International migration: Based on data on refugees compiled by UNHCR.

GUINEA-BISSAU

Total population (2000): Estimated to be consistent with the 1979 census adjusted upward for underenumeration, with the total population enumerated by the 1991 census, and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: In the absence of statistics indicative of fertility levels and trends, total fertility was assumed to have levels and follow trends similar to those estimated for neighbouring countries with similar socio-economic conditions as those of Guinea-Bissau. An estimate of total fertility derived from data on children ever born from the 2000 Guinea-Bissau MICS was taken into account.

Infant mortality: Derived from the level of life expectancy by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. An indirect estimate of infant mortality derived from data on children ever born and surviving from the 2000 Guinea-Bissau MICS was taken into account. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).

Life expectancy at birth: In the absence of statistics indicative of mortality levels and trends, life expectancy was assumed to have levels and follow trends similar to those estimated for neighbouring countries with similar socio-economic conditions as those of Guinea-Bissau.The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Based on data on refugees compiled by UNHCR.

GUYANA

Total population (2000): Estimated to be consistent with the 1991 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on: (a) data on children ever born classified by age of mother and births in the 12 months preceding enumeration classified by age of mother from the 1980 and 1991 censuses, (b) results from the 1986 Guyana Demographic Survey, and (c) the number of births registered during 1990
Infant mortality: Based on: (a) data on children ever born and surviving classified by age of mother, information on the survival of the last-born child of female respondents, and on deaths within the household during the five years preceding the survey from the 1986 Guyana Demographic Survey, (b) tabulations on the survival of the last-born child from the 1991 census, and (c) data on children ever born and surviving from the 2000 Guyana MICS. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
Life expectancy at birth: Based on (a) a life-table for 1986 derived from the number of deaths by age and sex for the period 1981-1986 recorded by the 1986 Guyana Demographic Survey, and (b) estimates of infant and child mortality, and (c) registered deaths through 1998. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Based on: (a) estimates of net international migration derived as the difference between overall population growth and natural increase during the 1980-1991 intercensal period, and (b) registered number of arrivals and departures (excluding visitors) through 1998.

HAITI

Total population (2000): Estimated to be consistent with the 1982 census adjusted upward by 9.3 per cent and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data from: (a) the 1977 Enquête Haitienne sur la Fécondité (EHF), (b) the 1983 Enquête Haitienne sur la Prévalence de la Contraception (EHPC), and (c) the 1987 and 1994-1995 Enquêtes de mortalité, morbidité et utilisation des services (EMMUS-I and II/DHS).
Infant mortality: Based on maternity-history data for 1974-1994 from the 1994-1995 DHS (EMMUS-II). The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
Life expectancy at birth: Based on a 1970-1971 life-table derived from: (a) registered deaths by age and sex adjusted for incompleteness using the growth-balance method and the 1971 census population by age and sex, and (b) estimated trends in infant mortality. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Estimated on the basis of the number and characteristics of Haitians enumerated in the 1980 round of censuses of Canada, the Dominican Republic and the United States of America.

HOLY SEE

Total population (2000): Estimated to be consistent with official population data provided by the Vatican City State for 1954-1998 and the assumed subsequent trend in the growth rate of the population.

HONDURAS

Total population (2000): Estimated to be consistent with the 1988 census adjusted upward by 7.2 per cent and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data for the period 1993-1995 from the 1996 Encuesta Nacional de Epidemiología y Salud Familiar (ENESF).
Infant mortality: Based on maternity-history data for the period 1986-1995 from the 1996 ENESF.

The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
Life expectancy at birth: Based on a life-table for 1988 derived from: (a) registered deaths by age and sex for 1988 adjusted for under-registration using the growth-balance method and the population by age and sex from the 1988 census, and (b) estimates of infant and child mortality. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Based on official estimates of international migration through 1990.

HUNGARY

Total population (2000): Estimated to be consistent with the 2001 census and with estimates of trends in fertility, mortality and international migration.
Total fertility: Based on official total fertility estimates available through 2000.
Infant mortality: Based on births and infant deaths registered through 1998.
Life expectancy at birth: Based on estimated life expectancy from registered deaths available through 2000.
International migration: Based on official estimates of international migration through 1990 and on the number of Hungarian migrants to developed countries.

ICELAND

Total population (2000): Estimated to be consistent with the official population estimate for 1 July 2001 and with estimates of trends in fertility, mortality and international migration.
Total fertility: Based on births registered through 2001, classified by age of mother.
Infant mortality: Based on births and infant deaths registered through 2001.
Life expectancy at birth: Based on an official life table for 1996-2000.
International migration: Based on official international migration statistics on immigrants and emigrants.

INDIA

Total population (2000): Estimated to be consistent with the 1991 census adjusted upward for undercount, the preliminary results of the 2001 census and with estimates of trends in fertility, mortality and international migration.
Total fertility: Based on age-specific fertility rates through 1997 from the Sample Registration System, and on maternity-history data from the 1992-1993 and 1998-1999 India National Family Health Surveys (NFHS-1 and 2/DHS).
Infant mortality: Based on infant mortality rates through 1997 from the Sample Registration System, and the 1992-1993 and 1998-1999 DHS (NFHS-1 and 2). The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
Life expectancy at birth: Based on a life-table constructed from age and sex-specific mortality rates from the Sample Registration System for 1989. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Based on information regarding: (a) emigration from India to developed countries, and (b) labour migration from India to other Asian countries.

INDONESIA

Total population (2000): Estimated to be consistent with the 2000 census adjusted upward for underenumeration and with estimates of trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data from the 1991, 1994 and 1997 DHS, own children estimates from the 1971, 1980 and 1990 censuses, and estimates from the 1976 Indonesia Fertility Survey and the 1987 National Indonesia Contraceptive Prevalence Survey.
Infant mortality: Based on maternity-history data from the 1991, 1994 and 1997 DHS and indirect estimates from the 1971, 1980 and 1990 censuses, the 1976 Indonesia Fertility Survey and the 1987 National Indonesia Contraceptive Prevalence Survey.
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables.
International migration: Based on information regarding Indonesians admitted by the main countries of immigration, data on labour migration and on estimates of net international migration derived as the difference between overall

population growth and natural increase during the 1980-1990 intercensal period.

IRAN (ISLAMIC REPUBLIC OF)

Total population (2000): Estimated to be consistent with the 1996 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on fertility estimates from the 1996 census and on the preliminary results of the 2000 Iran Demographic Health Survey..
Infant mortality: Based on data on children ever born and surviving classified by age of mother from the 1973 Baseline Population Growth Survey, the 1973-1976 Population Growth Survey of Iran, the 1986 census and the 1996 census, and estimates from UNICEF and WHO.
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to that of the East model of the Coale-Demeny Model Life Tables.
International migration: Based on data on refugees compiled by UNHCR and on data on migrants from Iran to developed countries.

IRAQ

Total population (2000): Estimated to be consistent with the 1987 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on data on children ever born classified by age of mother from the 1987 census and on the age pattern of fertility derived from that census and from birth registration data. Estimates from ESCWA were also taken into account.
Infant mortality: Derived from estimates of life expectancy at birth by assuming that the age pattern of mortality conforms to the East model of the Coale-Demeny Model Life Tables. Estimates from ESCWA and UNICEF were also considered.
Life expectancy at birth: Derived from registered deaths for 1985-1987 classified by age and sex and the 1987 census population, adjusting the former for under-registration. For 1990-1995, the estimates of life expectancy were revised in light of a study conducted in 1992 so as to take into account the consequences of the Gulf war.
*International migration:*Based on data on refugees compiled by UNHCR and on data on migrants from Iraq to developed countries.

IRELAND

Total population (2000): Estimated to be consistent with the 1996 census, the preliminary results of the 2002 census and with estimates of trends in fertility, mortality and international migration.
Total fertility: Based on official estimates of total fertility available through 2000 and total registered births for 2001.
Infant mortality: Based on births and infant deaths registered through 2000.
Life expectancy at birth: Based on official estimates of life expectancy derived from registered deaths and available through 2000. The age pattern of mortality was derived from an official life table for 1995-1997.
International migration: Based on an official estimate of international migration for the intercensal period 1996-2002.

ISLE OF MAN

Total population (2000): Estimated to be consistent with the 1996 census and the assumed subsequent trend in the growth rate of the population.

ISRAEL

Total population (2000): Estimated to be consistent with the 1995 census and with estimates of the subsequent trends in fertility, mortality and international migration. The population of Israel excludes the residents of Jerusalem classified as "Arabs and others" and includes Israeli citizens residing in the Occupied Palestinian Territory.
Total fertility: Based on official age-specific fertility rates for 1995-2000.
Infant mortality: Based on registered infant deaths and live births for 1995-1998. The sex ratio of infant mortality was based on infant mortality rates by sex for 1993-1997.
Life expectancy at birth: Based on an official estimate of life expectancy for 1995-1997 and a projected value for 1996-2000, both produced by the Census Bureau of Statistics, Israel.
International migration: Based on projection assumptions made by the Census Bureau of Statistics, Israel, for the periods 1996-2000 and 2016- 2020. The respective values were attributed to 1995-2000 and 2015-2020. The values in between were estimated by interpolation and the level assumed for 2015-2020 was kept constant until 2045-2050.

ITALY

Total population (2000): Estimated to be consistent with the 1991 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on official estimates of total fertility available through 2000.
Infant mortality: Based on births and infant deaths registered through 1998.
Life expectancy at birth: Based on official estimates of life expectancy derived from registered deaths through 1997.
International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase through 1998.

JAMAICA

Total population (2000): Estimated to be consistent with the 1991 census, the preliminary total population from the 2001 census and with estimates of trends in fertility, mortality and international migration.
Total fertility: Based on births registered through 1996 classified by age of mother.
Infant mortality: Based on the results of the 1993 Ministry of Health/UNICEF survey of infant mortality.
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the Latin American model of the the United Nations Model Life Tables.
International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase during the 1982-1991 intercensal period.

JAPAN

Total population (2000): Estimated to be consistent with the 2000 census and with estimates of trends in fertility, mortality and international migration.
Total fertility: Based on births registered through 2000 classified by age of mother.
Infant mortality: Based on births and infant deaths registered through 2000.
Life expectancy at birth: Based on an official life-table for 1999. Projected using a very fast model of change and assuming a ultimate convergence to West model of the Coale-Demeny Model Life Tables.
International migration: Based on estimates of net international migration derived from official information on emigration of Japanese to the main receiving countries and from information on the change in the numbers of registered foreigners through 2000.

JORDAN

Total population (2000): Estimated to be consistent with the 1994 census and with estimates of the subsequent trends in fertility, mortality and international migration. The population refers to Jordan proper (it does not include the West Bank).
Total fertility: Based on: (a) maternity-history data from the 1990 and 1997 Jordan Population and Family Health Surveys (DHS); (b) data on births during the preceding 12 months classified by age of mother from the 1994 census of the East Bank of Jordan, and; (c) information from other surveys and estimates from ESCWA.
Infant mortality: Based on data on children ever born and surviving classified by age of mother from the 1994 Post-Enumeration Survey conducted after the 1994 census, the 1995 Jordanian Society Survey and the 1999 Jordan Annual Fertility Survey. The 1998 and 2000 rates were estimated by assuming an exponential rate of change in infant mortality by sex.
Life expectancy at birth: Based on infant mortality estimates and a 1994 life-table derived from the number of deaths classified by age and sex during the 12 months preceding the 1994 census adjusted for under-reporting.
International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase during the 1979-1994 intercensal period.

KAZAKHSTAN

Total population (2000): Estimated to be consistent with the 1999 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on official estimates of total fertility available through 1998. Estimates from the 1999 Kazakhstan DHS were also considered.
Infant mortality: Based on births and infant deaths registered through 1998, adjusted upward by a factor of 1.2 before 1985, decreasing to 1.1 for 1990-1993, to take account of infant deaths omitted owing to the use of a definition of infant death that

does not conform to international standards. Estimates from 1999 Kazakhstan DHS were also considered.
Life expectancy at birth: Based on an official life table for 1997.
International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase through 1999.

KENYA

Total population (2000): Estimated to be consistent with the 1989 census adjusted upward for underenumeration, the preliminary total population from the 1999 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data from the 1989, 1993, and 1998 Kenya DHS.
Infant mortality: Based on data on children ever born and surviving from the 1989, 1993, and 1998 Kenya DHS. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Based on refugee statistics compiled by UNHCR and on the number of migrants from Kenya to developed countries.

KIRIBATI

Total population (2000): Estimated to be consistent with the 2000 census and the assumed trend in the growth rate of the population.

KUWAIT

Total population (2000): Estimated to be consistent with the 1995 census and with estimates of the subsequent trends in fertility, mortality and international migration. Official estimates from 1996 and 2000 were also considered.
Total fertility: Based on births registered through 1995 classified by age of mother.
Infant mortality: Based on births and infant deaths registered through 1997.
Life expectancy at birth: Based on a 1987 life-table derived from registered deaths by age and sex for 1987 and the underlying population by age and sex.
International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase through 2000.

KYRGYZSTAN

Total population (2000): Estimated to be consistent with the 1989 census and with estimates of the subsequent trends in fertility, mortality and international migration. The preliminary results of the 1999 census were also considered.
Total fertility: Based on official total fertility estimates available through 1999. Estimates from the 1997 Kyrgyzstan DHS were also considered.
Infant mortality: Based on births and infant deaths registered through 1995, adjusted upward by a factor of 1.25 to compensate for infant deaths omitted owing to the use of a definition of infant death that does not conform to international standards.
Life expectancy at birth: Based on official estimates of life expectancy derived from registered deaths and available through 1998.
International migration: Based on official estimates of net international migration through 1995 and on estimates derived as the difference between overall population growth and natural increase through 1999.

LAO PEOPLE'S DEMOCRATIC REPUBLIC

Total population (2000): Estimated to be consistend with the results of the 1995 census adjusted upwards by 2.8 per cent for under-enumeration and with subsequent trends in fertility, mortality and international migration.
Total fertility: Estimated to be consistent with the adjusted 1995 census age distribution and with data on children ever born and maternity-history data from the 1994 Fertility and Birth Spacing Survey.
Infant mortality: Based on data on children ever born and surviving from maternity histories gathered by the 1994 Fertility and Birth Spacing Survey.
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables.

International migration: Based on estimates of international migration for the 1985-1995 intercensal period.

LATVIA

Total population (2000): Estimated to be consistent with the 2000 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on official total fertility estimates available through 2000.
Infant mortality: Based on births and infant deaths registered through 2000.
Life expectancy at birth: Based on official estimates of life expectancy derived from registered deaths and available through 1998. The age pattern of mortality is derived from an official life table for 1998.
International migration: Based on official migration statistics available through 2000.

LEBANON

Total population (2000): Estimated to be consistent with the 1970 population count and with an estimate of the total population obtained from the Population and Housing Survey of 1994-1996, as well as with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on: (a) age-specific fertility rates from the 1970 Lebanon Labour Force Survey; (b) data from the 1996 Lebanon Maternal and Child Health Survey, and (c) data on children ever born from the 1996 Lebanon Population and Housing Database.
Infant mortality: Based on data on children ever born and surviving classified by age of mother and sex of child from the 1996 Lebanon Population and Housing Database.
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables.
International migration: Based on official estimates of net international migration and on estimates derived as the difference between overall population growth and natural increase through 1995.

LESOTHO

Total population (2000): Estimated to be consistent with the 1996 census adjusted upward for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on data on children ever born classified by age of mother and births in the preceding 12 months classified by age of mother from the 1996 census and fertility estimates from the 1991 Lesotho Demographic and Health Survey.
Infant mortality: Based on data on children ever born and surviving classified by age of mother from the 1996 census and estimates from UNICEF and WHO. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Based on refugee statistics compiled by UNHCR and on data on the number of migrant workers in South Africa.

LIBERIA

Total population (2000): Estimated to be consistent with the 1984 census adjusted upward for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data for 1981-1986 from the 1986 Liberia DHS.
Infant mortality: Based on maternity-history data for 1981-1986 and data on children ever born and surviving classified by age of mother from the 1986 Liberia DHS, and taking into account the consequences of the civil war for the period 1990-2000. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables and taking into account for 1990-2000 the consequences of the civil war. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Based on refugee statistics compiled by UNHCR.

LIBYAN ARAB JAMAHIRIYA

Total population (2000): Estimated to be consistent with the total enumerated population of the 1995 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data for 1990-1995 from the 1995 PAPCHILD Survey of the Lybyan Arab Jamahiriya.
Infant mortality: Based on maternity-history data from the 1995 PAPCHILD Survey of the Lybyan Arab Jamahiriya.
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the Far Eastern model of the United Nations Model Life Tables.
International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase during the 1984-1995 intercensal period.

LIECHTENSTEIN

Total population (2000): Estimated to be consistent with the 1990 census, an official population estimate for 2000 and the assumed trend in the growth rate of the population.

LITHUANIA

Total population (2000): Estimated to be consistent with the 2001 census and with trends in fertility, mortality and international migration.
Total fertility: Based on official total fertility estimates available through 2000.
Infant mortality: Based on births and infant deaths registered through 2000, adjusted upward by a factor of 1.25 prior to 1991, to compensate for infant deaths omitted owing to the use of a definition of infant death that does not conform to international standards.
Life expectancy at birth: Based on official estimates of life expectancy derived from registered deaths and available through 1999. The age pattern of mortality is derived from an official life table for 1998.
International migration: Based on official estimates of international migration through 2000.

LUXEMBOURG

Total population (2000): Estimated to be consistent with the 2001 census and with trends in fertility, mortality and international migration.
Total fertility: Based on official total fertility estimates available through 2000.
Infant mortality: Based on births and infant deaths registered through 2000.
Life expectancy at birth: Based on official estimates of life expectancy based on registered deaths through 2000.
International migration: Based on official estimates of international migration through 2000.

MADAGASCAR

Total population (2000): Estimated to be consistent with the 1993 census adjusted upward for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data from the 1992 and 1997 Madagascar DHS and on data on births in the last year and children ever born from the 1993 Census.
Infant mortality: Based on maternity-history from the 1992 and 1997 Madagascar DHS; and on data on children ever born and surviving from the 1993 Census.
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables and from an assessment of indirect estimates of adult mortality based on orphanhood data and the survivorship of siblings gathered by the DHS.
International migration: Based on data on persons born in Madagascar and enumerated by the censuses of key countries of destination, especially France.

MALAWI

Total population (2000): Estimated to be consistent with the 1998 census adjusted upward for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data and children ever born from the 1992 and 2000 Malawi DHS.
Infant mortality: Based on data from the 1998 census on children ever born classified by age of mother and births in the preceding 12 months classified by age of mother and estimates from UNICEF. The demographic impact of AIDS has

been factored into the mortality estimates (see chapter VI).
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. Estimates from the 1987 and 1998 censuses were also considered. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Based on refugee statistics compiled by UNHCR and on data on the number of migrant workers in South Africa.

MALAYSIA

Total population (2000): Estimated to be consistent with the 2000 census and with estimates of trends in fertility, mortality and international migration.
Total fertility: Based on births registred through 2000 (preliminary), adjusted for under registration.
Infant mortality: Based on births and infant deaths registered through 2000.
Life expectancy at birth: Based on deaths registred through 2000, adjusted for underregistration.
International migration: Based on data on inflows and outflows of refugees and on information on Malaysian emigrants admitted by the main countries of immigration.

MALDIVES

Total population (2000): Estimated to be consistent with the 2000 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on the crude birth rate and the number of births registered through 2000.
Infant mortality: Based on data on children ever born and surviving by age of mother from the 1990 census and on official infant mortality estimates through 2001.
Life expectancy at birth: Based on official estimates of life expectancy through 1999.
International migration: Net international migration was assumed to be zero.

MALI

Total population (2000): Estimated to be consistent with the 1987 census, the preliminary results of the 1998 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data and children ever born from the 1995-1996 Mali DHS.
Infant mortality: Based on maternity-history data for 1986-1996 from the 1995-1996 Mali DHS and estimates from UNICEF. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
Life expectancy at birth: Based on a 1987 life-table derived from the births and deaths occurring during the 12 months preceding the 1987 census, as well as on adjusted infant and child mortality estimates from the 1995-1996 Mali DHS. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Based on refugee statistics compiled by UNHCR, on the number of Malians enumerated in other countries of the region, and on the results of the REMUAO surveys carried out by CERPOD.

MALTA

Total population (2000): Estimated to be consistent with the 1995 census a.nd with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on official total fertility estimates available through 2000.
Infant mortality: Based on births and infant deaths registered through 2000.
Life expectancy at birth: Based on official estimates of life expectancy based on registered deaths and available through 2000. The age pattern of mortality was based on the average of life tables for the period 1995-1998 smoothed to remove fluctuations caused by small numbers.
International migration: Based on international migration registered through 2000.

MARSHALL ISLANDS

Total population (2000): Estimated to be consistent with the 1999 census and the assumed subsequent trend in the growth rate of the population.

MARTINIQUE

Total population (2000): Estimated to be consistent with the 1999 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on official estimates of total fertility through 2000.

Infant mortality: Based on births and infant deaths registered through 1993.
Life expectancy at birth: Based on: (a) a life-table for 1989-1991 calculated from registered deaths by age and sex and the 1990 mid-year population by age and sex, and (b) an estimate of life expectancy from deaths registered in 1997.
International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase during the 1982-1990 and 1990-1999 intercensal periods.

MAURITANIA

Total population (2000): Estimated to be consistent with the 1988 census adjusted upward by 2.4 per cent, the preliminary results of the 2000 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on: (a) nuptiality patterns and maternity-history data from the 1981 Fertility Survey of Mauritania, the 1990 Maternal Child and Health Survey, and the 2000 Mauritania DHS, and (b) children ever born from the 1988 census.
Infant mortality: Based on: (a) data on children ever born and surviving from the 1981 Fertility Survey of Mauritania and the 2000 Mauritania DHS, (b) results of the 1990 Maternal and Child Health Survey, and (c) estimates from UNICEF.
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables and taking into account the total number of deaths in 1995.
International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase during the 1988-2000 intercensal period, and on refugee statistics compiled by UNHCR.

MAURITIUS[7]

Total population (2000): Estimated to be consistent with the 2000 census and with estimates of trends in fertility, mortality and international migration.
Total fertility: Based on births registered through 2000, classified by age of mother, and total births through 2001.
Infant mortality: Based on births and infant deaths registered through 2001.
Life expectancy at birth: Based on a 2000 life-table calculated from registered deaths by age and sex, and on the underlying population by age and sex. The age pattern of mortality is based on a life table for 1992-1994.
International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase during the 1990-2000 intercensal period.

MEXICO

Total population (2000): Estimated to be consistent with the preliminary results of the 2000 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on: (a) births registered through 1995, classified by age of mother; (b) maternity-history data from the 1987 Encuesta Nacional sobre Fecundidad y Salud (DHS), the 1992 Encuesta Nacional de la Dinámica Demográfica (ENADID) and the 1995 Encuesta Nacional de Planificación Familiar, and (c) data on children ever born from the 1990 census.
Infant mortality: Based on maternity-history data for 1985-1990 from the 1992 Encuesta Nacional de la Dinámica Demográfica (ENADID).
Life expectancy at birth: Based on a life-table for 1989-1990 calculated from: (a) registered deaths by age and sex for 1989 and 1990, and the 1990 census population by age and sex; and (b) estimates of infant and child mortality.
International migration: Based on estimates derived from: (a) the number and characteristics of the population born in Mexico and enumerated by the censuses of the United States of America, and (b) statistics compiled by the Immigration and Naturalization Service of the United States on the number of Mexican admitted legally to that country and adjusted for undocumented migration.

MICRONESIA (FEDERATED STATES OF)

Total population (2000): Estimated to be consistent with the 2000 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on tabulations of children ever born by age of mother and births by age of mother in the preceding 12 months before the 2000 census.
Infant mortality: Based on the estimated level of infant and child mortality from data on children ever born and surviving by age of respondent from the 2000 census.

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables.

International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase during the 1994-2000 intercensal period.

MONACO

Total population (2000): Estimated to be consistent with the 1990 census, an official population estimate for 1999 and the assumed subsequent trend in the growth rate of the population.

MONGOLIA

Total population (2000): Estimated to be consistent with the 2000 census adjusted upward for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on: (a) births by age of mother registered through 2000, and (b) maternity-history data and data on children ever born by age of the mother from the 1998 Reproductive Health Survey.

Infant mortality: Based on: (a) registered births and infant deaths through 1999, and (b) children ever born and children surviving by age of the mother from the 1998 Reproductive Health Survey.

Life expectancy at birth: Based on 1990 registered deaths by age and sex and adjusted 1990 population by age and sex, and on the total number of deaths registered through 1999.

International migration: Based on information on migration flows in and out of Mongolia from the 2000 census and on estimates of net international migration derived as the difference between overall population growth and natural increase during the 1989-2000 intercensal period.

MONTSERRAT

Total population (2000): Estimated to be consistent with the 1991 census and the assumed subsequent trend in the growth rate of the population. The projected population takes account of the major volcanic eruption that affected the island during 1995-2000.

MOROCCO

Total population (2000): Estimated to be consistent with the 1994 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on maternity-history data from the 1987 and 1992 Enquêtes Nationales sur la Population et la Santé (ENPS-I and II/DHS) , the 1995 Enquête de Panel sur la Population et la Santé (EPPS/DHS), the 1997 PAPCHILD Survey of Morocco and the 1998-1999 living standards survey.

Infant mortality: Based on data on children ever born and surviving classified by age of mother from the 1995 Morocco DHS (EPPS).

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables.

International migration: Based on refugee statistics compiled by UNHCR, the number of Moroccan migrants to developed countries (including France), the number of Moroccans whose status was regularized in selected European countries, the number of Moroccan residents in European countries, and estimates of Moroccan migrants to Western Asia.

MOZAMBIQUE

Total population (2000): Estimated to be consistent with the 1997 census adjusted upward for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on: (a) data on children ever born and births during the last 12 months classified by age of mother from the 1997 census, and (b) maternity history data from the 1997 Mozambique DHS.

Infant mortality: Based on data on children ever-born and surviving by age of mother from the 1997 census and estimates from UNICEF. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. Official estimates from the 1997 census were also

considered. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Based on refugee statistics compiled by UNHCR, data on migration of workers to South Africa and on the results of the 1997 census regarding persons residing abroad five years before the enumeration.

MYANMAR

Total population (2000): Estimated to be consistent with the 1983 census, official estimates for 1997 and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on data from the 1997 Fertility and Reproductive Health Survey and the 1991 Myanmar Population Change and Fertility Survey. Levels were adjusted to produce an estimated population for 1997 that is close to the official estimate.
Infant mortality: Based on maternity-history data from the 1997 Fertility and Reproductive Health Survey and the 1991 Myanmar Population Change and Fertility Survey. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
Life expectancy at birth: Based on the life tables and infant mortality estimates produced by the 1991 Myanmar Population Change and Fertility Survey, assuming that the pattern of mortality conforms to the Latin American model of the United Nations Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Based on refugee statistics compiled by UNHCR.

NAMIBIA

Total population (2000): Estimated to be consistent with the 1991 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data from the 1992 Namibia DHS.
Infant mortality: Based on data on children ever born and surviving from the 1992 Namibia DHS and estimates from UNICEF. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Based on statistics on refugee flows compiled by UNHCR.

NAURU

Total population (2000): Estimated to be consistent with the 1992 census and the assumed subsequent trend in the growth rate of the population.

NEPAL

Total population (2000): Estimated to be consistent with the 2001 census adjusted upward for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data from the 1996 Nepal Family Health Survey and the 2001 Nepal DHS, adjusted for under-reporting.
Infant mortality: Based on data on children ever born and surviving classified by age of mother from the 1996 Nepal Family Health Survey and the 2001 DHS.
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables.
International migration: Estimated on the basis of information on household members abroad gathered by the 1981 and 1991 censuses and of information on refugee flows to and from the country.

NETHERLANDS

Total population (2000): Estimated to be consistent with the population yielded by the population register through 1 January 1998 and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on official total fertility estimates available through 2000.
Infant mortality: Based on births and infant deaths registered through 1998.
Life expectancy at birth: Based on official estimates of life expectancy derived from registered deaths through 1998.
International migration: Based on official estimates of net international migration through 1998.

NETHERLANDS ANTILLES

Total population (2000): Estimated to be consistent with the 1992 census and with the estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on the total number of registered births through 1999 and births by age of mother through 1991.

Infant mortality: Derived from the official life-table for 1986-1991.

Life expectancy at birth: Based on an official life-table for 1986-1991 and on comparison of trends with those of other Caribbean populations, and consistent with total registered deaths to 1999.

International migration: Based on official estimates of net international migration.

NEW CALEDONIA

Total population (2000): Estimated to be consistent with the 1996 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on births registered through 1998.

Infant mortality: Based on births and infant deaths registered through 1998.

Life expectancy at birth: Based on: (a) a life-table for 1995-1997 estimated from registered deaths classified by age and sex and on the underlying population by age and sex; (b) on the assumption that the age pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables, and (c) on the total number of deaths registered through 1998.

International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase during the 1989-1996 intercensal period.

NEW ZEALAND

Total population (2000): Estimated to be consistent with the 2001 census and with estimates of trends in fertility, mortality and international migration.

Total fertility: Based on total fertility and age-specific fertility estimates derived from registered births available through 2000.

Infant mortality: Based on births and infant deaths registered through 2000.

Life expectancy at birth: Based on: (a) a life table for 1998-2000 calculated from registered deaths by age and sex, and the underlying population; (b) registered deaths by age and sex through 2000.

International migration: Based on net international migration estimates derived from flow statistics through 2000.

NICARAGUA

Total population (2000): Estimated to be consistent with the 1995 census adjusted upward by 1.03 per cent and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on: (a) data on children ever born and births in the preceding 12 months, both classified by age of mother from the 1995 census, and (b) maternity-history data from the 1998 Encuesta Nicaraguense de Demografía y Salud (ENDESA/DHS).

Infant mortality: Based on data on children ever born and surviving classified by age of mother from the 1995 census and the 1998 Nicaragua DHS (ENDESA).

Life expectancy at birth: Based on (1) a life table estimated from the deaths in the past year recorded by the 1995 census, and (2) infant and child mortality estimates the 1995 census and the 1998 Nicaragua DHS (ENDESA).

International migration: Based on border statistics and other administrative statistics of Nicaragua, and from the number and characteristics of persons born in Nicaragua and enumerated by the 1988 census of Honduras and the 1990 census of the United States of America, and on estimates of net international migration derived as the difference between overall population growth and natural increase during each intercensal period.

NIGER

Total population (2000): Estimated to be consistent with the 1988 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on maternity-history data from the 1992 and 1998 Niger DHS.

Infant mortality: Based on maternity-history data from the 1992 and 1998 Niger DHS.

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables and adjusted in the past so as to produce an adequate fit to the enumerated populations in 1977and 1988.

International migration: Net international migration estimated on the basis on information on foreign-born persons enumerated in Niger and Niger citizens enumerated in neighbouring countries.

NIGERIA

Total population (2000): Estimated to be consistent with the 1991 census adjusted upward for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data from the 1990 and the 1999 Nigeria DHS, adjusted for under-reporting of births.
Infant mortality: Based on maternity-history data from the 1990 and 1999 Nigeria DHS. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Net international migration was estimated on the basis of information on Nigerian-born persons enumerated in neighbouring countries, flows of Nigerians to selected developed countries and information obtained at the time of the repatriation of undocumented migrants that took place in 1983 and 1985.

NIUE

Total population (2000): Estimated to be consistent with the 1997 census and the assumed subsequent trend in the growth rate of the population.

NORTHERN MARIANA ISLANDS

Total population (2000): Estimated to be consistent with the 2000 census and the assumed subsequent trend in the growth rate of the population.

NORWAY

Total population (2000): Estimated to be consistent with the 1990 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on official total fertility estimates available through 2000.
Infant mortality: Based on births and infant deaths registered through 1998.
Life expectancy at birth: Based on official estimates of life expectancy derived from registered deaths and available through 1998. The age pattern of mortality is derived from an official life table for 1993.
International migration: Based on migration statistics available through 1998.

OCCUPIED PALESTINIAN TERRITORY

Total population (2000): Estimated to be consistent with the 1997 census and with estimates of the subsequent trends in fertility, mortality and international migration. Population estimates of the Occupied Palestinian Territory include the non-Jewish population residing in East Jerusalem and exclude Israeli citizens residing in the Occupied Palestinian Territory.

Total fertility: Based on official total fertility estimates for 1997 and 1998 produced by the Palestinian Central Bureau of Statistics. The 1997 estimate is derived by the P/F ratio method using births in the year preceding the 1997 census and average parity as measured by the census.
Infant mortality: Based on data on children ever born and surviving classified by age of mother from the 1995 Demographic Survey.
Life expectancy at birth: Based on official estimates for 1997 produced by the Palestinian Central Bureau of Statistics.
International migration: Based on existing estimates of refugee flows and labour migration.

OMAN

Total population (2000): Estimated to be consistent with the 1993 census adjusted for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on: (a) maternity-history data from the 1995 Oman Family Health Survey relative to the Omani population, and (b) estimates of fertility levels prepared by ESCWA.
Infant mortality: Based on data on children ever born and surviving from the 1988 Gulf Child Health Survey, the 1995 Oman Family Health Survey and estimates prepared by ESCWA.
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age

pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables.
International migration: Based on the number of foreigners (non-Omanis) in the country through 2000 and the results of the 1993 census.

PAKISTAN

Total population (2000): Estimated to be consistent with the 1981 census, the preliminary results of the 1998 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on estimates from the 1996-1997 Pakistan Fertility and Family Planning Survey, the 2000-2001 Pakistan Reproductive Health and Family Planning Survey and on estimates from previous surveys and censuses.
Infant mortality: Based on: (a) births and infant deaths in the previous 12 months from the 1984-1988 Pakistan Demographic Surveys, and (b) maternity-history data for 1982-1991 from the 1990-1991 Pakistan DHS and infant mortality estimates from the 2000-2001 Pakistan Reproductive Health and Family Planning Survey.
Life expectancy at birth: Based on life-tables derived from the 1984-1988 Pakistan Demographic Surveys and adjusted for under-reporting of deaths. Estimates were derived assuming that the pattern of mortality in Pakistan conforms to the South-Asian model of the United Nations Model Life Tables.
International migration: Based on information on the outflow of migrant workers, on data on Pakistani immigrants admitted by the main countries of immigration and data on refugee flows compiled by UNHCR.

PALAU

Total population (2000): Estimated to be consistent with the 2000 census and the assumed subsequent trend in the growth rate of the population.

PANAMA

Total population (2000): Estimated to be consistent with the 2000 census adjusted upward by 2.6 per cent and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on births registered through 1993, classified by age of mother.
Infant mortality: Based on: (a) data on children ever born and surviving by age of mother from the 1990 census, and (b) births and infant deaths registered through 1993.
Life expectancy at birth: Based on a life-table for 1989-1990 calculated from: (a) registered deaths by age and sex for 1989-1990 adjusted for under-registration by using the growth-balance method and the 1990 census population by age and sex, and (b) estimates of infant andchildmortality.
International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase during the 1990-2000 intercensal period.

PAPUA NEW GUINEA

Total population (2000): Estimated to be consistent with the 2000 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on an application of the P/F ratio method to data on children ever born and births in the preceding year by age of mother from the 1996 Demographic and Health Survey.
Infant mortality: Estimated to be consistent with life expectancy and with the assumption that the pattern of mortality by age conforms to that of the Far Eastern model of the United Nations Model Life Tables.
Life expectancy at birth: Based on the estimated level of infant and child mortality and the estimated level of adult mortality derived from data on parental survivorship (orphanhood) by age of respondent from the 1990 census.
International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase through 1990. As of 1990-1995, net international migration was assumed to be zero.

PARAGUAY

Total population (2000): Estimated to be consistent with the 1992 census adjusted upward by 7.1 per cent and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on: (a) maternity-history data from the 1990 Encuesta Nacional de Demografía y Salud (ENDS/DHS) and the 1995-1996 Encuesta Nacional de Demografía y Salud Reproductiva; (b) on fertility data from the 1998 Encuesta Nacional de Salud Materno-Infantil, and (c) data on children ever born and births in the preceding 12 months,

both classified by age of mother, from the 1992 census.
Infant mortality: Based on data on children ever born and surviving classified by age of mother from the 1992 census.
Life expectancy at birth: Based on a 1991-1993 life table derived from: (a) registered deaths by age and sex for 1991-1993 adjusted for under-registration by using the growth-balance method and the 1992 census population by age and sex, and (b) estimated levels of infant and child mortality.
International migration: Based on estimated net international migration through 1994 calculated from border statistics, the number of persons born in Paraguay and enumerated by the censuses of Argentina and the United States of America, and other administrative statistics.

PERU

Total population (2000): Estimated to be consistent with the 1993 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data from the 1991-1992, 1996 and 2000 Encuestas Demográficas y de Salud Familiar (ENDES-II, III and IV/DHS), and on data on children ever born and births in the preceding 12 months, both classified by age of mother, from the 1993 census.
Infant mortality: Based on data on children ever born and surviving by age of mother from the 1991-1992, 1996 and 2000 DHS, and fthe 1993 census.
Life expectancy at birth: Based on a 1991-1992 life-table calculated from: (a) registered deaths by age and sex for 1991-1992 adjusted for under-registration by using the growth-balance method and the 1993 census population by age and sex, and (b) the estimated level of infant and child mortality.
International migration: Net international migration was estimated for 1982-1990 from border statistics and other administrative statistics, and from the number and characteristics of persons born in Peru and enumerated by the 1990 censuses of Argentina, Canada, Chile, Venezuela and the United States of America .

PHILIPPINES

Total population (2000): Estimated to be consistent with the 1995 census, the preliminary results of the 2000 census and estimates of the subsequent trends of fertility, mortality and international migration.
Total fertility: Based on maternity-history data from the 1993 National Demographic Survey and the 1998 Philippines DHS, and consistent with the age distributions produced by the 1990 and 1995 censuses.
Infant mortality: Based on maternity-history data from the 1993 National Demographic Survey and the 1998 DHS.
Life expectancy at birth: Based on a life-table for 1987-1989 calculated from deaths by age and sex registered in 1987-1989, adjusted for underregistration, and the underlying population by age and sex.
International migration: Estimated from data on Filipino emigrants admitted by the main countries of immigration, from data on clearances of Filipino workers and taking into account refugee flows. Levels were adjusted to be compatible with intercensal population change once fertility and mortality were taken into account.

PITCAIRN

Total population (2000): Estimated to be consistent with the 1991 census, the official 1999 population figures provided to the United Nations General Assembly (UN Document Symbol: A/AC.109/2002/2) and the assumed subsequent trend in the growth rate of the population.

POLAND

Total population (2000): Estimated to be consistent with the 1988 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on official total fertility estimates available through 2000.
Infant mortality: Based on infant mortality estimates through 2000.
Life expectancy at birth: Based on official estimates of life expectancy available through 2000. The age pattern of mortality is derived from the official life table for 1997.
International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase through 1995.

PORTUGAL

Total population (2000): Estimated to be consistent with the 1991 census, an official estimate of the de facto population for mid-1995, and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on official estimates of total fertility available through 2000.
Infant mortality: Based on births and infant deaths registered through 1999.
Life expectancy at birth: Based on official estimates of life expectancy available through 1999. The age pattern of mortality is derived from an official life table for 1996-1997.
International migration: Based on: (a) official estimates of international migration, and (b) estimates of net international migration derived as the difference between overall population growth and natural increase through 1995.

PUERTO RICO

Total population (2000): Estimated to be consistent with the 2000 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on births registered through 2001, classified by age of mother.
Infant mortality: Based on births and infant deaths registered through 2000.
Life expectancy at birth: Based on official life tables for 1992-1994 and official estimates of life expectancy availalbe through 1999 and infant mortality through 2001.
International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase during the 1990-2000 intercensal period.

QATAR

Total population (2000): Estimated to be consistent with the 1997 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on births registered in 1997, classified by age of mother, and the number of women enumerated in the 1997 census. Estimates from the 1998 Gulf Family Health Survey (GFHS) were also considered.
Infant mortality: Based on estimates from ESCWA.
Life expectancy at birth: Based on an official life-table prepared by WHO, adjusted for child mortality.
International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase during the 1986-1997 intercensal period.

REPUBLIC OF KOREA

Total population (2000): Estimated to be consistent with the 2000 census and with estimates of trends in fertility, mortality and international migration.
Total fertility: Based on official estimates of total fertility through 2000.
Infant mortality: Based on registered births and infant deaths up to 1999 adjusted for under registration.
Life expectancy at birth: Based on an official life-table for 1995, and registered deaths available through 1999.
International migration: Based on estimates of migration of Koreans to the main countries of immigration and on labour migration statistics of the Republic of Korea.

REPUBLIC OF MOLDOVA

Total population (2000): Estimated to be consistent with the 1989 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on official estimates of total fertility available through 2000.
Infant mortality: Based on births and infant deaths registered through 2000, adjusted to compensate for infant deaths omitted owing to the use, prior to 1991, of a definition of infant death that did not conform to international standards. Adjustments are still thought necessary although the definition of infant death has been changed.
Life expectancy at birth: Based on official estimates of life expectancy available through 2000. The age pattern of mortality is derived from a life table constructed on the basis of 1996 data.
International migration: Based on flow statistics available through 2000.

RÉUNION

Total population (2000): Estimated to be consistent with the 1999 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on official estimates of total fertility available through 2001.
Infant mortality: Based on births and infant deaths registered through 1999.
Life expectancy at birth: Based on official estimates of life expectancy through 2001. The age pattern of mortality is based on a 1980-1984 life-table derived from registered deaths by age and sex and from the 1982 census population by age and sex.
International migration: Based on estimates of net international migration by INSEE derived as the difference between overall population growth and natural increase during the 1990-1999 intercensal period.

ROMANIA

Total population (2000): Estimated to be consistent with the 1992 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on official estimates of total fertility available through 2000.
Infant mortality: Based on births and infant deaths registered through 2000.
Life expectancy at birth: Based on official estimates of life expectancy available through 2000. The age pattern of mortality is based on an official life table for 1993-1996.
International migration: Based on official estimates of net international migration through 2000.

RUSSIAN FEDERATION

Total population (2000): Estimated to be consistent with the 1989 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on official estimates of total fertility available through 2000.
Infant mortality: Based on births and infant deaths registered through 2000, adjusted by a factor of 1.25 before 1993, 1.15 for 1993 and 1.1 for 1994 to compensate for infant deaths omitted owing to the use of a definition of infant death that does not conform to international standards. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
Life expectancy at birth: Based on deaths registered through 2000, classified by age and sex, and on the underlying population by age and sex. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Based on official estimates of international migration through 2000.

RWANDA

Total population (2000): Estimated to be consistent with the 1991 census adjusted upward for underenumeration, the preliminary total population from the 2002 census and with estimates of trends in fertility, mortality and international migration.
Total fertility: Based on: (a) estimates derived from data on children ever born and births in the previous three years, both classified by age of mother, from the 1992 Rwanda DHS and 2000 Rwanda DHS, and (b) data on children ever born by age of mother from the 1996 Socio-Demographic Survey.
Infant mortality: Based on data on children ever born and surviving from the 1996 Socio-Demographic Survey, adjusted to reflect the effects of the 1993-1994 civil war, and from the 2000 Rwanda DHS. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
Life expectancy at birth: Based on the estimated level of infant mortality and taking into account the unusual numbers of deaths caused by the 1993-1994 civil war. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Based on refugee statistics compiled by UNHCR.

SAINT HELENA[8]

Total population (2000): Estimated to be consistent with the 1998 census and the assumed subsequent trend in the growth rate of the population.

SAINT KITTS AND NEVIS

Total population (2000): Estimated to be consistent with the 1991 census, official population estimates for 1995 and 1999 and the assumed subsequent trend in the growth rate of the population.

SAINT LUCIA

Total population (2000): Estimated to be consistent with the 1991 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on registered births by age of mother through 2000.
Infant mortality: Based on births and infant deaths registered through 2000.
Life expectancy at birth: Based on official estimates of life expectancy through 2000. The age pattern of mortality is based on a life table for 1989 derived from registered deaths by age and sex and the underlying population by age and sex derived from the 1991 census.
International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase through 1991.

SAINT-PIERRE-ET-MIQUELON

Total population (2000): Estimated to be consistent with the 1999 census and the assumed subsequent trend in the growth rate of the population.

SAINT VINCENT AND GRENADINES

Total population (2000): Estimated to be consistent with the 1991 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on births registered through 1992, classified by age of mother.
Infant mortality: Based on births and infant deaths registered through 1992.
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables.
International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase through 1991.

SAMOA

Total population (2000): Estimated to be consistent with the 1991 census and with estimates of the subsequent trends in fertility, mortality and international migration. The preliminary results of the 2001 census were also considered.
Total fertility: Based on: (a) data on children ever born and births during the last 12 months classified by age of mother from the 1991 census, and (b) maternity-history data from the 1999 Samoa DHS.
Infant mortality: Based on data on children ever born and surviving classified by age of mother from the 1999 Samoa DHS.
Life expectancy at birth: Based on: (a) reported deaths by age and sex for 1997 and 1998 from the 1999 Samoa DHS and the underlying population, and (b) the assumption that the age pattern of mortality conforms to the Far Eastern model of the United Nations Model Life Tables. The age pattern of mortality derived from the DHS data could not be accepted because of the random variations associated with small numbers.
International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase during the 1986-1991 and 1991-2001 intercensal periods.

SAN MARINO

Total population (2000): Estimated to be consistent with official population estimates for 1950-1999 and the assumed subsequent trend in the growth rate of the population.

SÃO TOMÉ AND PRÍNCIPE

Total population (2000): Estimated to be consistent with the 1991 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on births registered through 1993.
Infant mortality: Based on births and infant deaths registered through 1993.
Life expectancy at birth: Based on the total number of deaths registered through 1993 and the assumption that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables.
International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase during the 1981-1991 intercensal period.

SAUDI ARABIA

Total population (2000): Estimated to be consistent with the 1992 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on data on children ever born and births in the preceding 12 months classified by age of mother from the 1996 Saudi Arabia Family Health Survey (GFHS) and estimates prepared by ESCWA.

Infant mortality: Based on data on children ever born and surviving classified by age of mother from the 1999 Demographic Survey and estimates from UNICEF.
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables.
International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase during the 1992-1999 period, taking into account the return of Yemeni citizens to their country during the aftermath of the Gulf War.

SENEGAL

Total population (2000): Estimated to be consistent with the 1988 census adjusted upward for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data from the 1986, 1992-93, 1997 and 1999 DHS.
Infant mortality: Based on maternity-history data from the 1986, 1992-1993, 1997 and 1999 DHS.
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables.
International migration: Based on the results of the 1993 Enquête des Migrations et Urbanisation au Senegal (EMUS) and on information of the emigration of Senegalese to the Gambia.

SERBIA AND MONTENEGRO

Total population (2000): Estimated to be consistent with the 1981 census, adjusted to reflect the de facto population, and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on official estimates of total fertility available through 1997.
Infant mortality: Based on births and infant deaths registered through 1997.
Life expectancy at birth: Based on official estimates of life expectancy available through 1997. The age pattern of mortality was derived from an official life table for 1997.
International migration: Based on estimates of international migration available through 1997.

SEYCHELLES

Total population (2000): Estimated to be consistent with the 1997 census and the assumed subsequent trend in the growth rate of the population.

SIERRA LEONE

Total population (2000): Estimated to be consistent with the 1985 census adjusted upward for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on data from the 1985 census on children ever born and births in the previous 12 months, both classified by age of mother.
Infant mortality: Based on data on children ever born and surviving classified by age of mother from the 1985 census. Results from the 2000 Sierra Leone MICS were also considered. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Based on refugee statistics compiled by UNHCR.

SINGAPORE

Total population (2000): Estimated to be consistent with the 2000 census and with estimates of trends in fertility, mortality and international migration.
Total fertility: Based on official estimates of total fertility through 2000.
Infant mortality: Based on the overall level of mortality and the pattern of mortality embodied by official life tables, and with registered infant deaths through 2000.
Life expectancy at birth: Based on an official life-table calculated from deaths by age and sex registered in 1992 and the underlying population by age and sex. The expectation of life at birth for 1995-2000 was based on official estimates of life expectancy by sex through 2000.
International migration: Obtained from inter-censal estimates taking into account changes in both the number of permanent residents and non-residents.

SLOVAKIA

Total population (2000): Estimated to be consistent with the 1991 census, an official population estimate for mid-1995, the preliminary results of the 2001 census, and with estimates of trends in fertility, mortality and international migration.
Total fertility: Based on official estimates of total fertility available through 2000.
Infant mortality: Based on births and infant deaths registered through 2000.
Life expectancy at birth: Based on official estimates of life expectancy available through 2000. The pattern of mortality is based on an official life table for 1998.
International migration: Based on official statistics on international migration and on estimates of net migration between the Czech and Slovak areas of the former Czechoslovakia.

SLOVENIA

Total population (2000): Estimated to be consistent with official estimates of the de facto population in 1995 and 2000 and with estimates of trends in fertility, mortality and international migration.
Total fertility: Based on official estimates of total fertility available through 2000.
Infant mortality: Based on births and infant deaths registered through 2000.
Life expectancy at birth: Based on official estimates of life expectancy available through 2000. The age pattern of mortality is based on an official life table for 1993-1994.
International migration: Based on official statistics on international migration available through 2000.

SOLOMON ISLANDS

Total population (2000): Estimated to be consistent with the 1999 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on: (a) the own-children method applied to the 1976 and 1986 censuses, (b) maternity history tabulations of women from the 1995 KAP Survey (Knowledge, Attitude and Practices), and (c) data on children ever born and births in the past 12 months from the 1999 census.
Infant mortality: Based on data on children ever born and surviving by age of mother from the 1986 and 1999 censuses.
Life expectancy at birth: Based on: (a) data on children ever born and surviving from the 1986 and 1999 censuses; (b) data on orphanhood from the 1986 and 1999 censuses, and (c) the assumption that the pattern of mortality conforms to the Far Eastern model of the United Nations Model Life Tables. Indirect estimation permits the construction of a life table referring to the period 1980-1984.
International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase through 1985. As of 1985-1990, net international migration was assumed to be zero.

SOMALIA

Total population (2000): Estimated to be consistent with the 1975 census adjusted upward for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on: (a) the 1980-1981 National Survey of Population; (b) the provisional results from the 1986-1987 census for Mogadishu; (c) the 1999 Safe Motherhood Baseline Survey conducted in the North-West region of Somalia, and (d) the 1999 Reproductive Health Survey conducted in the North-West and North-East regions of Somalia.
Infant mortality: Based on the results of the 1999 Somalia MICS.
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. Additional deaths due to the famine of 1992 and the war have been factored into the mortality estimates.
International migration: Based on refugee statistics compiled by UNHCR.

SOUTH AFRICA

Total population (2000): Estimated to be consistent with the 1996 census adjusted upward for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration The populations of Transkei,Bophuthatswana, Venda and Ciskei are included in the estimates.
Total fertility: Based on maternity-history data and number of children ever born from the 1998 South Africa DHS.
Infant mortality: Based on data on children ever born and surviving classified by age of mother from the 1998 South Africa DHS and estimates

from UNICEF. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the Far Eastern model of the United Nations Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Based on the number of immigrants from South Africa to developed countries, on official immigration and emigration statistics for South Africa, on data on migrant workers compiled by the Chamber of Mines, on refugee statistics provided by UNHCR and on estimates of illegal migration to South Africa.

SPAIN

Total population (2000): Estimated to be consistent with the 2001 census and with estimates of trends in fertility, mortality and international migration.
Total fertility: Based on official estimates of total fertility available through 1999.
Infant mortality: Based on births and infant deaths registered through 1999.
Life expectancy at birth: Based on official estimates of life expectancy available through 2000. The age pattern of mortality is based on an official life table for 1994-1995.
International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase during the 1981-1991 and 1991-2001 intercensal periods.

SRI LANKA

Total population (2000): Estimated to be consistent with the 1981 census, the preliminary results of the 2001 census and with estimates of trends in fertility, mortality and international migration.
Total fertility: Based on (a) births by age of mother registered through 1995, and (b) maternity-history data from the 1975 Sri Lanka WFS and the 1987 Sri Lanka DHS and (c) official total fertility estimates through 1997.
Infant mortality: Based on births and infant deaths registered through 2000.
Life expectancy at birth: Based on official estimates of life expectancy and on the assumption that the age pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables.
International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase during the 1963-1981 intercensal period, and on official estimates of net international migration for 1980-1995 prepared by the Sri Lanka Department of Census and Statistics.

SUDAN

Total population (2000): Estimated to be consistent with the 1983 census, the 1993 census adjusted upward for the lack of coverage of the population in the Southern provinces and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on the maternity-history data from the 1978 Sudan WFS, the 1990 Sudan DHS and the 1992-1993 PAPCHILD Survey of Sudan, taking into account changing patterns of nuptiality and the lack of change in marital fertility until the early 1990s.
Infant mortality: Based on data on children ever born and surviving classified by age of mother from the 1978 Sudan WFS and the 1990 Sudan DHS. Adjustments were made to take into account the mortality levels in the Southern provinces. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Based on refugee statistics provided by UNHCR and on estimated levels of worker migration to Western Asia starting in 1970.

SURINAME

Total population (2000): Estimated to be consistent with the 1980 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on births registered through 1980, classified by age of mother, and the total number of registered births through 2000.
Infant mortality: Derived from the life-table for 1979-1981 mentioned above. Official statistics on registered births and infant deaths through 2000

were also considered, as were data on children ever born and surviving from the 2000 Suriname MICS.
Life expectancy at birth: Based on a life-table constructed from deaths registered during 1979-1981, classified by age and sex, and on the 1980 census population classified by age and sex, and trends implied by registered deaths through 2000.
International migration: Based on official estimates produced by the Netherlands Central Office of Statistics available through 1992.

SWAZILAND

Total population (2000): Estimated to be consistent with the 1997 census adjusted upward for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on: (a) maternity-history data from the 1988 Family Health Survey, and (b) preliminary results from the 1991 Demographic and Housing Survey, adjusted while taking into account the enumerated population of younger age groups in the 1986 and 1997 censuses.
Infant mortality: Based on data on children ever born and surviving classified by age of mother from the 1976 census and estimates from UNICEF. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Based on refugee statistics compiled by UNHCR and on information on migrant workers to South Africa.

SWEDEN

Total population (2000): Estimated to be consistent with the 1990 census, an official population estimate for mid-1995 and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on official estimates of total fertility available through 2000.
Infant mortality: Based on births and infant deaths registered through 1999.
Life expectancy at birth: Based on official estimates of life expectancy available through 1998. The age pattern of mortality was based on an official life table for 1993-1997.
International migration: Based on statistics on immigrants and emigrants available through 1998.

SWITZERLAND

Total population (2000): Estimated to be consistent with the 1990 census, an official population estimate for mid-1995 and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on official estimates of total fertility available through 2000.
Infant mortality: Based on births and infant deaths registered through 1998.
Life expectancy at birth: Based on official estimates of life expectancy available through 1998. The age pattern of mortality was based on an official life table for 1995-1996.
International migration: Based on statistics on immigrants and emigrants available through 1999.

SYRIAN ARAB REPUBLIC

Total population (2000): Estimated to be consistent with the 1994 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data and on data on children ever born classified by age of mother from the 1993 PAPCHILD Survey of the Syrian Arab Republic, on results from the 1999 Multi-Purpose Survey and on registered births through 1994.
Infant mortality: Based on data on children ever born and surviving from the 1981 Syrian Arab Republic WFS, the 1981 census, the 1993 PAPCHILD Survey of the Syrian Arab Republic and estimates from UNICEF.
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables, adjusted to conform to estimates provided by ESCWA.
International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase through 1994.

TAJIKISTAN

Total population (2000): Estimated to be consistent with the 2000 census and with estimates of the

subsequent trends in fertility, mortality and international migration.
Total fertility: Based on official estimates of total fertility available through 1996.
Infant mortality: Based on births and infant deaths registered through 1997, adjusted by a factor of 1.25 to compensate for infant deaths omitted owing to the use of a definition of infant death that does not conform to international standards.
Life expectancy at birth: Based on official estimates of life expectancy available through 1997, adjusted for under-registration prior to 1991.
International migration: Based on official estimates of international migration available through 1993.

THAILAND

Total population (2000): Estimated to be consistent with the 2000 census adjusted for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on estimates from the 1995-1996 Survey of Population Change, the 1987 Thailand DHS and on prior census and survey estimates.
Infant mortality: Based on data on infant death rates obtained in the 1995-1996 Survey of Population Change and estimates from UNICEF. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
Life expectancy at birth: Based on a life-table for 1995-1996 calculated from age-specific death rates obtained by the 1995-1996 Survey of Population Change. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Based on refugee statistics provided by UNHCR, on information on the number of Thai workers cleared to work abroad and on the estimated stock of foreigners in Thailand.

THE FORMER YUGOSLAV REPUBLIC OF MACEDONIA

Total population (2000): Estimated to be consistent with the 1994 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on official total fertility estimates available through 1998.
Infant mortality: Based on births and infant deaths registered through 1998.
Life expectancy at birth: Based on official estimates of life expectancy at birth available through 1997. The age pattern of mortality is based on an official life table for 1995-1997.
International migration: Based on statistics on international migration available through 1998.

TOGO

Total population (2000): Estimated to be consistent with the 1981 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data from the 1998 Togo DHS.
Infant mortality: Based on data on children ever born and surviving from the 1998 Togo DHS. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Based on refugee statistics provided by UNHCR.

TOKELAU

Total population (2000): Estimated to be consistent with the 2001 census and the assumed trend in the growth rate of the population.

TONGA

Total population (2000): Estimated to be consistent with the 1996 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on tabulations of children ever born by age of mother and births by age of mother in the preceding 12 months before the 1996 census.
Infant mortality: Estimated to be (a) consistent with the estimated level of life expectancies and (b) the assumption of a Coale-Demeny West region model age pattern of mortality.
Life expectancy at birth: Based on the estimated level of infant and child mortality and the estimated

level of adult mortality derived from data on parental survivorship (orphanhood) by age of respondent from the 1996 census, and on the assumption that the age pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables.
International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase during the 1986-1996 intercensal period.

TRINIDAD AND TOBAGO

Total population (2000): Estimated to be consistent with the 1990 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on births registered through 1997, classified by age of the mother.
Infant mortality: Based on births and infant deaths registered through 1997, adjusted for under-registration and to ensure consistency with the empirical life-table. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
Life expectancy at birth: Based on a life-table derived from deaths registered in 1989-1991, classified by age and sex, and on the 1990 mid-year population by age and sex. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase during the 1980-1990 intercensal period.

TUNISIA

Total population (2000): Estimated to be consistent with the 1994 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on official estimates of total fertility through 2000.
Infant mortality: Based on official estimates of infant mortality rates through 2000.
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the East model of the Coale-Demeny Model Life Tables. Official estimates of life expectancy at birth from the 1990s were also considered.
International migration: Based on the number of Tunisian migrants recorded by the European countries as published by Eurostat.

TURKEY

Total population (2000): Estimated to be consistent with the 1990 census, the total population from the 1997 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data from the 1993 Turkey DHS and the 1998 Turkey DHS.
Infant mortality: Based on maternity-history data from the 1993 Turkey DHS, the 1998 Turkey DHS and estimates from UNICEF.
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the East model of the Coale-Demeny Model Life Tables.
International migration: Based on: (a) data on the migration of Turks to and from European countries and the overseas countries of immigration, and (b) refugees statistics compiled by UNHCR.

TURKMENISTAN

Total population (2000): Estimated to be consistent with the 1989 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on births registered through 1992 and for 1994, classified by age of mother, and on the total number of births for 1995 and 1996. Results from the 2000 Turkmenistan DHS were also considered.
Infant mortality: Based on data of the 2000 TDHS, and on births and infant deaths registered through 1999, adjusted by a factor of 1.25 to compensate for infant deaths omitted owing to the use of a definition of infant death that does not conform to international standards.
Life expectancy at birth: Based on deaths registered through 1997, classified by age and sex and adjusted for under-registration, and on the underlying population by age and sex.
International migration: Based on official estimates of net international migration through 1995.

TURKS AND CAICOS ISLANDS

Total population (2000): Estimated to be consistent with the 1990 census and the assumed subsequent trend in the growth rate of the population.

TUVALU

Total population (2000): Estimated to be consistent with the 1991 census and the assumed subsequent trend in the growth rate of the population.

UGANDA

Total population (2000): Estimated to be consistent with the 1991 census adjusted upward for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on: (a) maternity-history data from the 1988-1989, 1995 and 2000-2001 Uganda DHS, and (b) data on children ever born and births in the previous 12 months, both classified by age of mother, from the 1991 census.
Infant mortality: Based on data on children ever born and surviving classified by age of mother from the 1988-1989, 1995 and 2000-2001 Uganda DHS, and from the 1991 census. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Based on refugee statistics provided by UNHCR and on the estimated number of Ugandans who were expelled from the country in the early 1970s.

UKRAINE

Total population (2000): Estimated to be consistent with the 1989 census, official estimates of the de facto population for 2000 and 2001, and with estimates of trends in fertility, mortality and international migration.
Total fertility: Based on births registered through 1998, classified by age of mother, and on the total number of births registered through 2000.
Infant mortality: Based on births and infant deaths registered through 1999, adjusted by a factor of 1.25 prior to 1995 and of 1.15 between 1995 and 1997, to compensate for infant deaths omitted owing to the use of a definition of infant death that does not conform to international standards.
Life expectancy at birth: Based on an official life table for 1995-1997.
International migration: Based on official estimates of international migration available through 2000.

UNITED ARAB EMIRATES

Total population (2000): Estimated to be consistent with the 1995 census adjusted upward for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on estimates of total fertility derived from births by age of mother registered through 1998 and produced by ESCWA.
Infant mortality: Based on a 1987 estimate derived from data on children ever born and surviving classified by age of mother from the 1987-1988 Gulf Child Health Survey.
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables.
International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase during the 1985-1995 intercensal period.

UNITED KINGDOM

Total population (2000): Estimated to be consistent with the 2001 census and with estimates of trends in fertility, mortality and international migration.
Total fertility: Based on official total fertility estimates available through 2000.
Infant mortality: Based on births and infant deaths registered through 2000.
Life expectancy at birth: Based on official estimates of life expectancy available through 2000, and an official life table for 1997.
International migration: Based on net international migration estimates derived from border statistics available through 2000.

UNITED REPUBLIC OF TANZANIA

Total population (2000): Estimated to be consistent with the 1988 census adjusted upward for underenumeration, the preliminary total population from the 2002 census and with estimates of trends in fertility, mortality and international migration.

Total fertility: Based on maternity-history data from the 1991-1992 and 1996 United Republic of Tanzania DHS, and the 1999 Reproductive and Child Health Survey (RCHS).
Infant mortality: Based on maternity-history data from the 1991-1992 and 1996 United Republic of Tanzania DHS, and the 1999 RCHS. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
Life expectancy at birth: Based on (a) a life table derived from the 1988 census analysis, and (b) the results of the 1991-1992 and 1996 United Republic of Tanzania DHS. The age pattern of mortality was derived from the life table based on the 1988 census. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Based on refugee statistics provided by UNHCR.

UNITED STATES OF AMERICA

Total population (2000): Estimated to be consistent with the 2000 census, which includes the population in the territory of the United States and United States citizens serving in the overseas armed forces, and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on official estimates of total fertility provided by the National Center for Health Statistics through 2000. These estimates are based on registered births by age of mother.
Infant mortality: Based on official estimates of infant mortality obtained from the Department of Health and Human Services, National Center for Health Statistics through 2000. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
Life expectancy at birth: Based on official estimates provided by the Department of Health and Human Services, National Center for Health Statistics through 1999. These estimates are based on registered deaths by age and sex. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase during the 1980-1990 and 1990-2000 intercensal periods.

UNITED STATES VIRGIN ISLANDS

Total population (2000): Estimated to be consistent with the 2000 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on births registered by age of mother through 2000.
Infant mortality: Based on births and infant deaths registered through 2000.
Life expectancy at birth: Based on the total number of deaths registered through 2000 and the assumption that the age pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables.
International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase during the 1990-2000 intercensal period.

URUGUAY

Total population (2000): Estimated to be consistent with the 1996 census adjusted upward by 2.3 per cent and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on births registered through 1998, classified by age of mother.
Infant mortality: Based on births and infant deaths registered through 1996.
Life expectancy at birth: Based on a life-table constructed from registered deaths by age and sex for 1995-1996 and the 1996 census population by age and sex and taking into account deaths registered through 1998.
International migration: Based on: (a) the number and characteristics of persons born in Uruguay and enumerated by the censuses of receiving countries in the Americas, and (b) estimates of net international migration derived as the difference between overall population growth and natural increase during the 1985-1996 intercensal period.

UZBEKISTAN

Total population (2000): Estimated to be consistent with the 1989 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on: (a) an official estimate of total fertility for 1998, and (b) the total number of births registered through 2000, and (c) on the 1996 Uzbekistan DHS.

Infant mortality: Based on: (a) births and infant deaths registered through 1996, adjusted by a factor of 1.25 to compensate for infant deaths omitted owing to the use of a definition of infant death that does not conform to international standards, and (b) the 1996 Uzbekistan DHS.
Life expectancy at birth: Based on official estimates of life expectancy for 1990.
International migration: Based on official estimates of international migration through 1995.

VANUATU

Total population (2000): Estimated to be consistent with the 1999 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on data on children ever born and births in the previous 12 months, both classified by age of mother, from the 1989 and 1999 censuses.
Infant mortality: Based on data on children ever born and children surviving classified by age of mother from the 1999 census.
Life expectancy at birth: Based on (a) the estimated level of infant and child mortality, and (b) tabulations of parental survivorship (orphanhood) by age of respondent from the 1999 census, and (c) by assuming that the age pattern of mortality conforms to the the Far Eastern model of the United Nations Model Life Tables.
*International migration:*Based on estimates of net international migration derived as the difference between overall population growth and natural increase during the 1989-1999 intercensal period.

VENEZUELA

Total population (2000): Estimated to be consistent with the 1990 census adjusted upward by 7.8 per cent and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on births registered through 1998, classified by age of mother.
Infant mortality: Based on: (a) births and infant deaths registered through 1998, adjusted for under-registration, and (b) data on children ever born and surviving classified by age of mother from the 1990 census.
Life expectancy at birth: Based on a life-table derived from registered deaths by age and sex for 1989-1990 adjusted for under-registration by using the growth-balance method and from the 1990 census population by age and sex.
International migration: Based on estimates of net international migration derived as the difference between overall population growth and natural increase during each intercensal period.

VIET NAM

Total population (2000): Estimated to be consistent with the 1999 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data from the 1997 Viet Nam DHS.
Infant mortality: Based on maternity-history data from the 1997 Viet Nam DHS.
Life expectancy at birth: Based on a life-table for 1988-1989 derived from data on deaths during the 12 months preceding the enumeration and the population enumerated by the 1989 census, both classified by age and sex.
International migration: Based on (a) refugees resettled in the major countries of immigration; (b) refugee statistics complied by UNHCR, and (c) the number of immigrants from Viet Nam to developed countries.

WALLIS AND FUTUNA ISLANDS

Total population (2000): Estimated to be consistent with the 1996 census and the assumed subsequent trend in the growth rate of the population.

WESTERN SAHARA

Total population (2000): Estimated to be consistent with the coverage of the territory of Western Sahara by the 1994 census of Morocco and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: In the absence of statistics indicative of fertility levels and trends, total fertility was assumed to have levels and follow trends similar to those estimated for neighbouring countries with similar socio-economic conditions as those of Western Sahara.
Infant mortality: In the absence of statistics indicative of mortality in childhood, infant mortality was assumed to have levels and follow trends similar to those estimated for neighbouring countries with similar socio-economic conditions as those of Western Sahara.

Life expectancy at birth: In the absence of statistics indicative of mortality levels and trends, life expectancy was assumed to have levels and follow trends similar to those estimated for neighbouring countries with similar socio-economic conditions as those of Western Sahara.
International migration: Based on refugee statistics compiled by UNHCR and estimates of inflows into Western Sahara.

YEMEN

Total population (2000): Estimated to be consistent with the 1994 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data from the 1979 Yemen WFS, and the 1991-1992 and 1997 Yemen DHS.
Infant mortality: Based on maternity-history data from the 1997 Yemen DHS and estimates from UNICEF.
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables.
International migration: Based on estimates of the number of Yemeni migrants who returned to Yemen during the aftermath of the Gulf War.

ZAMBIA

Total population (2000): Estimated to be consistent with the 1990 census, the preliminary total population from the 2000 census and with estimates of trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data and completed family size from the 1992 and 1996 Zambia DHS, adjusted as to produce an adequate fit to the age distribution produced by the 1980 and 1990 censuses. Results from the 2001-2002 Zambia DHS preliminary report were also considered.
Infant mortality: Based on data on children ever born and surviving classified by age of the mother from the 1992 and 1996 Zambia DHS, and estimates from UNICEF. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Based on refugee statistics compiled by UNHCR and on data on Zambians migrating to selected developed countries.

ZIMBABWE

Total population (2000): Estimated to be consistent with the 1992 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data from the 1988, 1994 and 1999 Zimbabwe DHS and from age-specific fertility rates estimated from the 1969, 1982 and 1992 censuses.
Infant mortality: Based on data on children ever born and surviving classified by age of mother from the 1969, 1982 and 1992 censuses and from the 1988, 1994 and 1999 Zimbabwe DHS. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter VI).
International migration: Based on refugee statistics compiled by UNHCR and data on persons originating in Zimbabwe and migrating to selected developed countries.

REFERENCE

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NOTES

[1] The programme is currently named Measure DHS and information is accessible through their website at www.measuredhs.com

[2] For more information, see UNICEF'S website at www.childinfo.org.

[3]Including Christmas Island, Cocos (Keeling) Islands and Norfolk Island.

[4]For statistical purposes, the data for China do not include Hong Kong and Macao Special Administrative Regions (SAR) of China.

[5]As of 1 July 1997, Hong Kong became a Special Administrative Region (SAR) of China.

[6]As of 20 December 1999, Macao became a Special Administrative Region (SAR) of China.

[7]Including Agalega, Rodrigues and Saint Brandon.

[8]Including Ascension and Tristan da Cunha.

ANNEX

ORDERING THE DATA ON CD-ROM

The *2002 Revision* of the World Population Prospects, prepared by the United Nations Population Division, provides a comprehensive and consistent set of population data for the world's countries and areas. Detailed results from the *2002 Revision* are available for purchase in a compact disk (CD-ROM).

The CD-ROM contains a comprehensive set of demographic indicators for the period 1950-2050. It includes the full set of indicators as well as the full set of estimates and projections of national populations by five-year age group and sex published in volumes I and II of *World Population Prospects: The 2002 Revision*, plus a number of datasets displaying results of the *2002 Revision* that are available only in digital form. In all datasets, figures for 1950-2000 are estimates and those thereafter are projections.

The first six groups of datasets present the results of the estimates and the four traditional projection variants, namely, the low, medium, high and constant-fertility variants. The seventh group presents the results of the No-AIDS variant, produced by assuming that AIDS never existed. Because of this assumption, the estimates associated with the No-AIDS variant (that is, the figures for 1950-2000) differ from the estimates presented with other variants because AIDS started affecting the populations of the majority of the highly affected countries at about 1980. By comparing these results with those of the estimates and medium-variant projections that include explicitly the effects of the HIV/AIDS epidemic, the user can infer the impact of the epidemic. Selected indicators are presented for an additional three variants: the zero-migration, constant-mortality and instant-replacement-fertility.

All datasets contain, in addition to data for individual countries and areas, data on 33 country aggregates, including the world as a whole, the more and the less developed regions, and the major world areas.

Datasets are presented as Microsoft Excel files. For a detailed listing of the contents of the CD-ROM consult the following table. The CD-ROM also contains the images of the data printed in volumes I and II of *World Population Prospects: The 2002 Revision* in PDF format.

For information on how to order this CD-ROM please see the order form at the end of this chapter.

TABLE. CONTENTS OF DATASETS IN DIGITAL FORM

Datasets	*Indicators*		*Number of countries or areas*	*Variants (starting in 2000)*	*Periods covered*	*Age groups*
Period indicators	F1.	Total fertility	192	Low, medium, high, constant-fertility	1950-1955,….2045-2050	---
	F2.	Net reproduction rate	192	Low, medium, high, constant-fertility	1950-1955,….2045-2050	---
	F3.	Crude birth rate	192	Low, medium, high, constant-fertility	1950-1955,….2045-2050	---
	F4.	Births	192	Low, medium, high, constant-fertility	1950-1955,….2045-2050	---
	F5.	Life expectancy at birth by sex	192	Medium	1950-1955,….2045-2050	---
	F6.	Infant mortality, q(1)	192	Medium	1950-1955,….2045-2050	---
		Under-five mortality, q(5)	192	Medium	1990-1995,….2045-2050	---
	F7.	Crude death rate	192	Low, medium, high, constant-fertility	1950-1955,….2045-2050	---
	F8.	Total number of deaths (both sexes)	192	Low, medium, high, constant-fertility	1950-1955,….2045-2050	---
	F8.	Total number of male deaths	192	Low, medium, high, constant-fertility	1950-1955,….2045-2050	---
	F8.	Total number of female deaths	192	Low, medium, high, constant-fertility	1950-1955,….2045-2050	---
	F9.	Net migration rate	192	Low, medium, high, constant-fertility	1950-1955,….2045-2050	---
	F10.	Net number of migrants (both sexes)	192	Medium	1950-1955,….2045-2050	---
	F11.	Population growth rate	228	Low, medium, high, constant-fertility	1950-1955,….2045-2050	---
	F12.	Rate of natural increase	192	Low, medium, high, constant-fertility	1950-1955,….2045-2050	---
	F13.	Sex ratio at birth	192	Medium	1990-1995,….2045-2050	---
Stock indicators	F1.	Total population (both sexes)	228	Low, medium, high, constant-fertility	1950, 1951,….2049, 2050	---
	F2.	Male population	192	Low, medium, high, constant-fertility	1950, 1951,….2049, 2050	---
	F3.	Female population	192	Low, medium, high, constant-fertility	1950, 1951,….2049, 2050	---
	F4.	Sex ratio of the population	192	Low, medium, high, constant-fertility	1950, 1955,….2045, 2050	---
	F5.	Dependency ratio	192	Low, medium, high, constant-fertility	1950, 1955,….2045, 2050	---
	F6.	Median age of the population	192	Low, medium, high, constant-fertility	1950, 1955,….2045, 2050	---
Population by age and sex, quinquennial	F1.	Population by five-year age group (both sexes)	192	Low, medium, high, constant-fertility	1950, 1955,….1985, 1990	0-4, 5-9,…75-79, 80+
					1995, 2000,….2045, 2050	0-4, 5-9,….95-99, 100+
	F2.	Male population by five-year age group	192	Low, medium, high, constant-fertility	1950, 1955,….1985, 1990	0-4, 5-9,…75-79, 80+
					1995, 2000,….2045, 2050	0-4, 5-9,….95-99, 100+
	F3.	Female population by five-year age group	192	Low, medium, high, constant-fertility	1950, 1955,….1985, 1990	0-4, 5-9,…75-79, 80+
					1995, 2000,….2045, 2050	0-4, 5-9,….95-99, 100+

TABLE (*continued*)

Datasets		***Indicators***	***Number of countries or areas***	***Variants (starting in 2000)***	***Periods covered***	***Age groups***
Population by age and sex, annual	F1.	Population by five-year age group (both sexes)	192	Medium	1950, 1951,….1994	0-4, 5-9,…75-79, 80+
					1995, 1996,….2000	0-4, 5-9,….95-99, 100+
		Population by five-year age group (both sexes)	192	Medium	2001, 2002,….2050	0-4, 5-9,….95-99, 100+
	F2.	Population by five-year age group (male)	192	Medium	1950, 1951,….1994	0-4, 5-9,…75-79, 80+
					1995, 1996,….2000	0-4, 5-9,….95-99, 100+
		Population by five-year age group (male)	192	Medium	2001, 2002,….2050	0-4, 5-9,….95-99, 100+
	F3.	Population by five-year age group (female)	192	Medium	1950, 1951,….1994	0-4, 5-9,…75-79, 80+
					1995, 1996,….2000	0-4, 5-9,….95-99, 100+
		Population by five-year age group (female)	192	Medium	2001, 2002,….2050	0-4, 5-9,….95-99, 100+
Mortality indicators by age and sex	F1.	Deaths by five-year age group (both sexes)	192	Low, medium, high, constant-fertility	1995-2000,….2045-2050	0-4, 5-9,….90-94, 95+
	F2.	Deaths by five-year age group (male)	192	Low, medium, high, constant-fertility	1995-2000,….2045-2050	0-4, 5-9,….90-94, 95+
	F3.	Deaths by five-year age group (female)	192	Low, medium, high, constant-fertility	1995-2000,….2045-2050	0-4, 5-9,….90-94, 95+
	F4.	Life table *l(x)* values by sex	192	Medium	1995-2000,….2045-2050	0, 1, 5, 10,….95, 100
	F5.	Life expectancy at age *x* by sex	192	Medium	1995-2000,….2045-2050	0, 1, 5, 10,….95, 100
Fertility Indicators by age	F1.	Births by five-year age group of mother	192	Medium	1995-2000,….2045-2050	15-19, 20-24,…45-49
	F2.	Age-specific fertility rates	192	Medium	1995-2000,….2045-2050	15-19, 20-24,…45-49

TABLE (*continued*)

Datasets	*Indicators*		*Number of countries or areas*	*Variants*	*Periods covered*	*Age groups*
Period indicators, No-AIDS	F1.	Total fertility	192	No-AIDS	1950-1955,….2045-2050	---
	F2.	Net reproduction rate	192	No-AIDS	1950-1955,….2045-2050	---
	F3.	Crude birth rate	192	No-AIDS	1950-1955,….2045-2050	---
	F4.	Births	192	No-AIDS	1950-1955,….2045-2050	---
	F5.	Life expectancy at birth by sex	192	No-AIDS	1950-1955,….2045-2050	---
	F6.	Infant mortality, q(1)	192	No-AIDS	1950-1955,….2045-2050	---
		Under-five mortality, q(5)	192	No-AIDS	1990-1995,….2045-2050	---
	F7.	Crude death rate	192	No-AIDS	1950-1955,….2045-2050	---
	F8.	Total number of deaths (both sexes)	192	No-AIDS	1950-1955,….2045-2050	---
	F8.	Total number of male deaths	192	No-AIDS	1950-1955,….2045-2050	---
	F8.	Total number of female deaths	192	No-AIDS	1950-1955,….2045-2050	---
	F9.	Net migration rate	192	No-AIDS	1950-1955,….2045-2050	---
	F10.	Net number of migrants (both sexes)	192	No-AIDS	1950-1955,….2045-2050	---
	F11.	Population growth rate	228	No-AIDS	1950-1955,….2045-2050	---
	F12.	Rate of natural increase	192	No-AIDS	1950-1955,….2045-2050	---
	F13.	Sex ratio at birth	192	No-AIDS	1990-1995,….2045-2050	---
Stock indicators, No-AIDS	F1.	Total population (both sexes)	228	No-AIDS	1950, 1951,….2049, 2050	---
	F2.	Male population	192	No-AIDS	1950, 1951,….2049, 2050	---
	F3.	Female population	192	No-AIDS	1950, 1951,….2049, 2050	---
	F4.	Sex ratio of the population	192	No-AIDS	1950, 1955,….2045, 2050	---
	F5.	Dependency ratio	192	No-AIDS	1950, 1955,….2045, 2050	---
	F6.	Median age of the population	192	No-AIDS	1950, 1955,….2045, 2050	---
Population by age and sex, quinquennial, No-AIDS	F1.	Population by five-year age group (both sexes)	192	No-AIDS	1950, 1955,….1985, 1990	0-4, 5-9,…75-79, 80+
					1995, 2000,….2045, 2050	0-4, 5-9,….95-99, 100+
	F2.	Male population by five-year age group	192	No-AIDS	1950, 1955,….1985, 1990	0-4, 5-9,…75-79, 80+
					1995, 2000,….2045, 2050	0-4, 5-9,….95-99, 100+
	F3.	Female population by five-year age group	192	No-AIDS	1950, 1955,….1985, 1990	0-4, 5-9,…75-79, 80+
					1995, 2000,….2045, 2050	0-4, 5-9,….95-99, 100+

TABLE (*continued*)

Datasets	*Indicators*		*Number of countries or areas*	*Variants*	*Periods covered*	*Age groups*
Population by age and sex, annual, No-AIDS	F1.	Population by five-year age group (both sexes)	192	No-AIDS	1950, 1951,….1994	0-4, 5-9,…75-79, 80+
					1995, 1996,….2000	0-4, 5-9,….95-99, 100+
		Population by five-year age group (both sexes)	192	No-AIDS	2001, 2002,….2050	0-4, 5-9,….95-99, 100+
	F2.	Population by five-year age group (male)	192	No-AIDS	1950, 1951,….1994	0-4, 5-9,…75-79, 80+
					1995, 1996,….2000	0-4, 5-9,….95-99, 100+
		Population by five-year age group (male)	192	No-AIDS	2001, 2002,….2050	0-4, 5-9,….95-99, 100+
	F3.	Population by five-year age group (female)	192	No-AIDS	1950, 1951,….1994	0-4, 5-9,…75-79, 80+
					1995, 1996,….2000	0-4, 5-9,….95-99, 100+
		Population by five-year age group (female)	192	No-AIDS	2001, 2002,….2050	0-4, 5-9,….95-99, 100+
Mortality indicators by age and sex, No-AIDS	F1.	Deaths by five-year age group (both sexes)	192	No-AIDS	1995-2000,….2045-2050	0-4, 5-9,….90-94, 95+
	F2.	Deaths by five-year age group (male)	192	No-AIDS	1995-2000,….2045-2050	0-4, 5-9,….90-94, 95+
	F3.	Deaths by five-year age group (female)	192	No-AIDS	1995-2000,….2045-2050	0-4, 5-9,….90-94, 95+
	F4.	Life table *l(x)* values by sex	192	No-AIDS	1995-2000,….2045-2050	0, 1, 5, 10,….95, 100
	F5.	Life expectancy at age *x* by sex	192	No-AIDS	1995-2000,….2045-2050	0, 1, 5, 10,….95, 100
Fertility indicators by age, No-AIDS	F1.	Births by five-year age group of mother	192	No-AIDS	1995-2000,….2045-2050	15-19, 20-24,…45-49
	F2.	Age-specific fertility rates	192	No-AIDS	1995-2000,….2045-2050	15-19, 20-24,…45-49

TABLE (*continued*)

Datasets	***Indicators***		***Number of countries or areas***	***Variants (starting in 2000)***	***Periods covered***	***Age groups***
Zero-migration variant	F1.	Population by sex and five-year age group	192	Zero-migration	2000, 2005,… 2045, 2050	0-4, 5-9, ...95-99, 100+
	F2.	Total population (both sexes)	192	Zero-migration	1950, 1955,… 2045, 2050	---
	F3.	Median age of the population	192	Zero-migration	1950, 1955,… 2045, 2050	---
	F4.	Dependency ratio	192	Zero-migration	1950, 1955,… 2045, 2050	---
	F5.	Crude birth rate	192	Zero-migration	1950-1955, … 2045-2050	---
	F6.	Crude death rate	192	Zero-migration	1950-1955, … 2045-2050	---
	F7.	Population growth rate	192	Zero-migration	1950-1955, ….2045-2050	---
Constant-mortality variant	F1.	Population by sex and five-year age group	192	Constant-mortality	2000, 2005, …2045, 2050	0-4, 5-9, ...95-99, 100+
	F2.	Total population (both sexes)	192	Constant-mortality	1950, 1955,….2045, 2050	---
	F3.	Median age of the population	192	Constant-mortality	1950, 1955,….2045, 2050	---
	F4.	Dependency ratio	192	Constant-mortality	1950, 1955,….2045, 2050	---
	F5.	Deaths by sex and five-year age group	192	Constant-mortality	2000-2005, … 2045-2050	0-4, 5-9, ...95-99, 100+
	F6.	Life expectancy at birth by sex	33 regions	Constant-mortality	1950-1955, ….2045-2050	---
	F7.	Crude birth rate	192	Constant-mortality	1950-1955, ….2045-2050	---
	F8.	Crude death rate	192	Constant-mortality	1950-1955, ….2045-2050	---
	F9.	Population growth rate	192	Constant-mortality	1950-1955, ….2045-2050	---
Instant-replacement-fertility variant	F1.	Population by sex and five-year age group	192	Instant-replacement-fertility	2000, 2005, …2045, 2050	0-4, 5-9, ...95-99, 100+
	F2.	Total population (both sexes)	192	Instant-replacement-fertility	1950, 1955,….2045, 2050	---
	F3.	Median age of the population	192	Instant-replacement-fertility	1950, 1955,….2045, 2050	---
	F4.	Dependency ratio	192	Instant-replacement-fertility	1950, 1955,….2045, 2050	---
	F5.	Total fertility	192	Instant-replacement-fertility	1950-1955, ….2045-2050	---
	F6.	Crude birth rate	192	Instant-replacement-fertility	1950-1955, ….2045-2050	---
	F7.	Crude death rate	192	Instant-replacement-fertility	1950-1955, ….2045-2050	---
	F8.	Population growth rate	192	Instant-replacement-fertility	1950-1955, ….2045-2050	---

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Notes

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