

**World Population Prospects**  
**The 2012 Revision**  
*Highlights and Advance Tables*



United Nations  
New York, 2013



**Department of Economic and Social Affairs**  
Population Division

# **World Population Prospects**

## **The 2012 Revision**

*Highlights and Advance Tables*



United Nations  
New York, 2013

# DESA

The Department of Economic and Social Affairs of the United Nations Secretariat is a vital interface between global policies in the economic, social and environmental spheres and national action. The Department works in three main interlinked areas: (i) it compiles, generates and analyses a wide range of economic, social and environmental data and information on which States Members of the United Nations draw to review common problems and take stock of policy options; (ii) it facilitates the negotiations of Member States in many intergovernmental bodies on joint courses of action to address ongoing or emerging global challenges; and (iii) it advises interested Governments on the ways and means of translating policy frameworks developed in United Nations conferences and summits into programmes at the country level and, through technical assistance, helps build national capacities.

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## PREFACE

This report presents the highlights of the results of the *2012 Revision* of the 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. The *2012 Revision* constitutes the twenty third round of the global population estimates and projections produced by the Population Division since 1951.

The Population Division has pursued its endeavour to develop probabilistic projections for all countries and areas of the world, which was initiated in the *2010 Revision* with the projections of fertility. Aside from updating the methods used to yield the future trajectories of fertility, the *2012 Revision* incorporates for the first time probabilistic projections of mortality. Detailed components of the projections are presented for up to the year 2100. It should be stressed, however, that making projections to such a far horizon at the country level is subject to a high degree of uncertainty. In that regard, users are invited not to focus only on the outcomes of the medium variant, which corresponds to the median of several thousands projected country trajectories for each component, but also to appreciate the meaning of the uncertainty bounds in such an exercise. Detailed information on the uncertainty bounds for different components at the country level can be accessed on the Population Division's website at [www.unpopulation.org](http://www.unpopulation.org). The standard outputs of the *2012 Revision* do not include the probabilistic projections and are restricted to deterministic projection variants and scenarios included in other *Revisions of World Population Prospects*.

The detailed results of the *2012 Revision* are made available through a variety of media. The Population Division's website provide access to an extended set of data organized in Excel files (and ASCII database files) as well as to an interactive database that enables users to obtain specific information on a few countries at a time. Users requiring the complete results of the *2012 Revision* will be able to purchase them on CD-ROM/DVD. A description of the data contained in the different CD-ROM/DVD will be posted on the Population Division's website. A wall chart providing key demographic indicators for each development group, major area, region and country for the most recent period will also be published.

The full results of the *2012 Revision* will be presented in two volumes. The first volume will provide comprehensive tables displaying key demographic indicators for each development group, major area, region and country for selected periods or dates within 1950-2100. The second volume will contain demographic profiles presenting time series and plots covering the period from 1950 to 2100 for selected indicators for each country, as well as for development groups, major areas and regions. This volume will provide, 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.

Responsibility for the *2012 Revision* rests with the Population Division. In preparing the *2012 Revision*, the Population Division relied on the collaboration of the regional commissions, especially the Economic Commission for Latin America and the Caribbean, as well as specialized agencies and other relevant bodies of the United Nations system, including UNAIDS, UNICEF, UNHCR and the World Bank. The Statistics Division of the Department of Economic and Social Affairs of the United Nations Secretariat, through its *United Nations Demographic Yearbook* and its accompanying databases, provided access to official national population statistics used in the preparation of the *2012 Revision*. The Population Division also acknowledges the assistance and cooperation of Measure DHS, MICS (UNICEF), the Human Mortality Database, and IPUMS-International as well as national statistical offices who made available data and reports for recent censuses and surveys that informed the development of the estimates presented in this report. The Population Division is grateful for the contributions made by all these entities.

For further information about the *2012 Revision*, please contact the Director, Population Division, United Nations, New York, NY 10017, USA (Fax: 1 212 963 2147).



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## EXPLANATORY NOTES

### The following symbols have been used in the tables throughout this report:

Two dots (..) indicate that data are not available or are not reported separately.

A hyphen (-) indicates that the item is not applicable.

A minus sign (-) before a figure indicates a decrease.

A full stop (.) is used to indicate decimals.

Years given refer to 1 July.

Use of 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.

### References to countries, territories and areas:

The designations employed and the material in this publication 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 or area or its authorities, or concerning the delimitation of its frontiers or boundaries.

The designation “more developed” and “less developed” regions are intended for statistical purposes and do not express a judgment about the stage reached by a particular country or area in the development process. The term “country” as used in this publication also refers, as appropriate, to territories or areas.

More developed regions comprise all regions of Europe plus Northern America, Australia/New Zealand and Japan. Less developed regions comprise all regions of Africa, Asia (excluding Japan), and Latin America and the Caribbean as well as Melanesia, Micronesia and Polynesia. Countries or areas in the more developed regions are designated as “developed countries”. Countries or areas in the less developed regions are designated as “developing countries”.

The least developed countries, as defined by the United Nations General Assembly in its resolutions (59/209, 59/210, 60/33, 62/97, 64/L.55, 67/L.43) included 49 countries in June 2013: 34 in Africa, 9 in Asia, 5 in Oceania and one in Latin America and the Caribbean. Those 49 countries are: Afghanistan, Angola, Bangladesh, Benin, Bhutan, Burkina Faso, Burundi, Cambodia, 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, Mali, Mauritania, Mozambique, Myanmar, Nepal, Niger, Rwanda, Samoa, São Tomé and Príncipe, Senegal, Sierra Leone, Solomon Islands, Somalia, South Sudan, Sudan, Timor-Leste, Togo, Tuvalu, Uganda, United Republic of Tanzania, Vanuatu, Yemen and Zambia. These countries are also included in the less developed regions.

The group denominated “other less developed countries” comprises all countries in the less developed regions minus the least developed countries.

The term “sub-Saharan Africa” is used to designate the countries in Africa that exclude those in Northern Africa.

Countries and areas are grouped geographically into six major areas designated as: Africa; Asia; Europe; Latin America and the Caribbean; Northern America, and Oceania. These major areas are further divided into 21 geographical regions.

The names and composition of geographical areas follow those presented in “Standard country or area codes for statistical use” (ST/ESA/STAT/SER.M/49/Rev.3), available at <http://unstats.un.org/unsd/methods/m49/m49.htm>.

**The following abbreviations have been used:**

AIDS	Acquired immunodeficiency syndrome
DESA	Department of Economic and Social Affairs
HIV	Human immunodeficiency virus
LDCs	Least developed countries
MDGs	Millennium Development Goals
SAR	Special Administrative Region
TFR	Total fertility rate
UNAIDS	Joint United Nations Programme on HIV/AIDS

## CLASSIFICATION OF COUNTRIES BY MAJOR AREA AND REGION OF THE WORLD

<b>Africa</b>			
<i>Eastern Africa</i>	<i>Middle Africa</i>	<i>Northern Africa</i>	<i>Western Africa</i>
Burundi	Angola	Algeria	Benin
Comoros	Cameroon	Egypt	Burkina Faso
Djibouti	Central African Republic	Libyan Arab Jamahiriya	Cape Verde
Eritrea	Chad	Morocco	Côte d'Ivoire
Ethiopia	Congo	Sudan	Gambia
Kenya	Democratic Republic of the Congo	Tunisia	Ghana
Madagascar		Western Sahara	Guinea
Malawi	Equatorial Guinea		Guinea-Bissau
Mauritius <sup>1</sup>	Gabon	<i>Southern Africa</i>	Liberia
Mayotte	São Tomé and Príncipe		Mali
Mozambique		Botswana	Mauritania
Réunion		Lesotho	Niger
Rwanda		Namibia	Nigeria
Seychelles		South Africa	Saint Helena <sup>2</sup> *
Somalia		Swaziland	Senegal
South Sudan			Sierra Leone
Uganda			Togo
United Republic of Tanzania <sup>3</sup>			
Zambia			
Zimbabwe			

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<sup>1</sup> Including Agalega, Rodrigues, and Saint Brandon.

<sup>2</sup> Including Ascension, and Tristan da Cunha.

<sup>3</sup> Including Zanzibar.

CLASSIFICATION OF COUNTRIES (*continued*)

<b>Asia</b>			
<i>Eastern Asia</i>	<i>South-Central Asia</i> <sup>4</sup>	<i>South-Eastern Asia</i>	<i>Western Asia</i>
	<i>Central Asia</i>		
China <sup>5</sup>	Kazakhstan	Brunei Darussalam	Armenia
China, Hong Kong SAR <sup>6</sup>	Kyrgyzstan	Cambodia	Azerbaijan <sup>7</sup>
China, Macao SAR <sup>8</sup>	Tajikistan	Indonesia	Bahrain
Democratic People's	Turkmenistan	Lao People's Democratic	Cyprus <sup>9</sup>
Republic of Korea	Uzbekistan	Republic	Georgia <sup>10</sup>
Japan		Malaysia <sup>11</sup>	Iraq
Mongolia	<i>Southern Asia</i>	Myanmar	Israel
Republic of Korea		Philippines	Jordan
Other non-specified areas	Afghanistan	Singapore	Kuwait
	Bangladesh	Thailand	Lebanon
	Bhutan	Timor-Leste	Oman
	India	Viet Nam	Qatar
	Iran (Islamic Republic of)		Saudi Arabia
	Maldives		State of Palestine <sup>12</sup>
	Nepal		Syrian Arab Republic
	Pakistan		Turkey
	Sri Lanka		United Arab Emirates
			Yemen

<sup>4</sup> The regions Southern Asia and Central Asia are combined into South-Central Asia.

<sup>5</sup> For statistical purposes, the data for China do not include Hong Kong and Macao, Special Administrative Regions (SAR) of China, and Taiwan Province of China.

<sup>6</sup> As of 1 July 1997, Hong Kong became a Special Administrative Region (SAR) of China.

<sup>7</sup> Including Nagorno-Karabakh.

<sup>8</sup> As of 20 December 1999, Macao became a Special Administrative Region (SAR) of China.

<sup>9</sup> Including Northern Cyprus.

<sup>10</sup> Including Abkhazia and South Ossetia.

<sup>11</sup> Including Sabah and Sarawak.

<sup>12</sup> Including East Jerusalem.

CLASSIFICATION OF COUNTRIES (*continued*)

<b>Europe</b>			
<i>Eastern Europe</i>	<i>Northern Europe</i>	<i>Southern Europe</i>	<i>Western Europe</i>
Belarus	Channel Islands <sup>13</sup>	Albania	Austria
Bulgaria	Denmark	Andorra*	Belgium
Czech Republic	Estonia	Bosnia and Herzegovina	France
Hungary	Faeroe Islands*	Croatia	Germany
Poland	Finland <sup>14</sup>	Gibraltar*	Liechtenstein*
Republic of Moldova <sup>15</sup>	Iceland	Greece	Luxembourg
Romania	Ireland	Holy See <sup>16</sup> *	Monaco*
Russian Federation	Isle of Man*	Italy	Netherlands
Slovakia	Latvia	Malta	Switzerland
Ukraine	Lithuania	Montenegro	
	Norway <sup>17</sup>	Portugal	
	Sweden	San Marino*	
	United Kingdom of Great	Serbia <sup>18</sup>	
	Britain and Northern	Slovenia	
	Ireland <sup>19</sup>	Spain <sup>20</sup>	
		The former Yugoslav	
		Republic of Macedonia <sup>21</sup>	

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<sup>13</sup> Refers to Guernsey, and Jersey.

<sup>14</sup> Including Åland Islands.

<sup>15</sup> Including Transnistria.

<sup>16</sup> Refers to the Vatican City State.

<sup>17</sup> Including Svalbard and Jan Mayen Islands.

<sup>18</sup> Including Kosovo.

<sup>19</sup> Also referred to as United Kingdom.

<sup>20</sup> Including Canary Islands, Ceuta and Melilla.

<sup>21</sup> Also referred to as TFYR Macedonia.

CLASSIFICATION OF COUNTRIES (*continued*)

**Latin America and the Caribbean**

<i>Caribbean</i>	<i>Central America</i>	<i>South America</i>
Anguilla*	Belize	Argentina
Antigua and Barbuda	Costa Rica	Bolivia
Aruba	El Salvador	Brazil
Bahamas	Guatemala	Chile
Barbados	Honduras	Colombia
British Virgin Islands*	Mexico	Ecuador
Caribbean Netherlands* <sup>22</sup>	Nicaragua	Falkland Islands (Malvinas)*
Cayman Islands*	Panama	French Guiana
Cuba		Guyana
Curaçao		Paraguay
Dominica*		Peru
Dominican Republic		Suriname
Grenada		Uruguay
Guadeloupe <sup>23</sup>		Venezuela (Bolivarian Rep. of)
Haiti		
Jamaica		
Martinique		
Montserrat*		
Puerto Rico		
Saint Kitts and Nevis*		
Saint Lucia		
Saint Vincent and the Grenadines		
Sint Maarten (Dutch part)*		
Trinidad and Tobago		
Turks and Caicos Islands*		
United States Virgin Islands		

<sup>22</sup> Refers to Bonaire, Saba and Sint Eustatius.

<sup>23</sup> Including Saint-Barthélemy and Saint-Martin (French part).

CLASSIFICATION OF COUNTRIES (*continued*)

**Northern America**

Bermuda\*  
Canada  
Greenland\*  
Saint Pierre and Miquelon\*  
United States of America

**Oceania**

<i>Australia/New Zealand</i>	<i>Melanesia</i>	<i>Micronesia</i>	<i>Polynesia</i> <sup>24</sup>
Australia <sup>25</sup>	Fiji	Guam	American Samoa*
New Zealand	New Caledonia	Kiribati	Cook Islands*
	Papua New Guinea	Marshall Islands*	French Polynesia
	Solomon Islands	Micronesia	Niue*
	Vanuatu	(Federated States of)	Samoa
		Nauru*	Tokelau*
		Northern Mariana Islands*	Tonga
		Palau*	Tuvalu*
			Wallis and Futuna Islands*

**Sub-Saharan Africa**

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

NOTE: Countries with a population of less than 90,000 in 2013 are indicated by an asterisk (\*).

<sup>24</sup> Including Pitcairn.

<sup>25</sup> Including Christmas Island, Cocos (Keeling) Islands, and Norfolk Island.



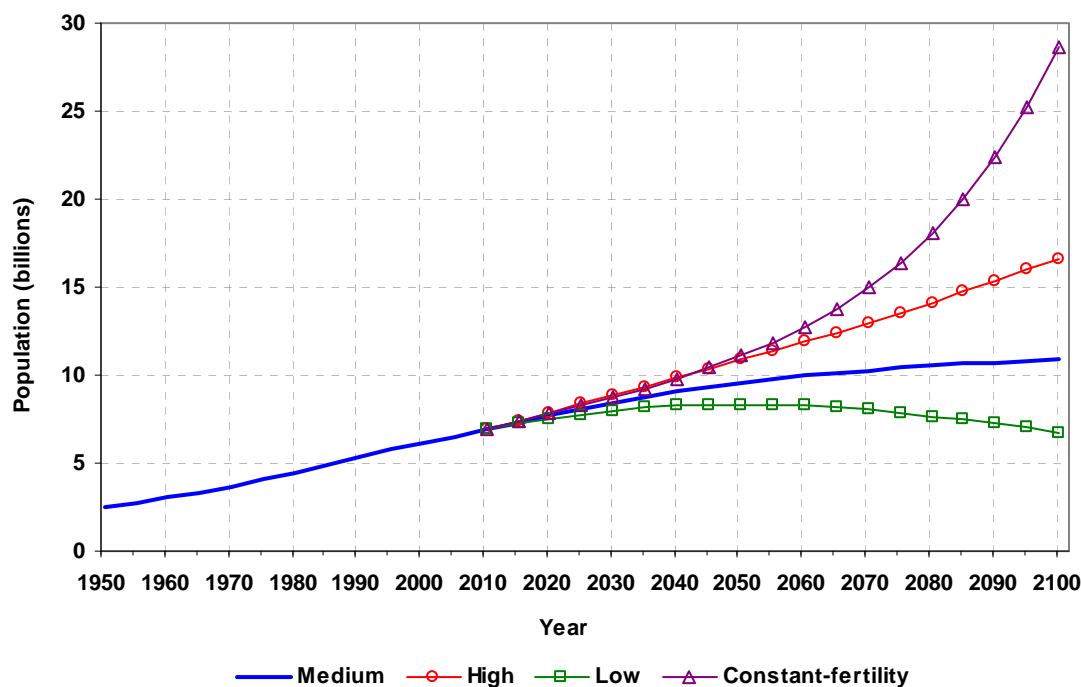


## EXECUTIVE SUMMARY

The *2012 Revision* is the twenty-third 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. The *2012 Revision* builds on the previous revision by incorporating the results of the 2010 round of national population censuses as well as findings from recent specialized demographic surveys that have been carried out around the world. These sources provide both demographic and other information to assess the progress made in achieving the internationally agreed development goals, including the Millennium Development Goals (MDGs). The comprehensive review of past worldwide demographic trends and future prospects presented in the *2012 Revision* provides the population basis for the assessment of those goals.

According to the *2012 Revision* of the official United Nations population estimates and projections, the world population of 7.2 billion in mid-2013 is projected to increase by almost one billion people within the next twelve years, reaching 8.1 billion in 2025, and to further increase to 9.6 billion in 2050 and 10.9 billion by 2100 (figure 1). These results are based on the medium-variant projection, which assumes a decline of fertility for countries where large families are still prevalent as well as a slight increase of fertility in several countries with fewer than two children per woman on average.

**Figure 1. Population of the world, 1950-2100, according to different projections and variants**



Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2013). *World Population Prospects: The 2012 Revision*. New York: United Nations.

Small differences in the trajectory of fertility during the next decades will have major consequences for population size, structure, and distribution in the long run. The “high-variant” projection depicted in the figure above, for example, which assumes an extra half of a child per woman (on average) compared to the medium variant, implies a world population of 10.9 billion in 2050 and 16.6 billion in 2100. The “low-variant” projection, where women have half a child less, on average, than under the medium variant, would produce a population of 8.3 billion in 2050. Thus, a constant difference of only half a child above or below the medium variant would result in a global population in 2050 of around 1.3 billion more or less compared to the medium variant of 9.6 billion.

Compared with the results from the previous revision, the projected global population total in this revision is higher, particularly after 2075, for several reasons. First, fertility levels have been adjusted upward in a number of countries on the basis of recently available information. In the new revision, the estimated total fertility rate (TFR) for 2005-2010 has increased in several countries, including by more than 5 per cent in 15 high-fertility countries from sub-Saharan Africa. In some cases, the actual level of fertility appears to have risen in recent years; in other cases, the previous estimate was too low. The cumulative effects of these higher estimates of current fertility levels will play out over several decades and are responsible for significant upward adjustments in the projected population size of certain countries between the two revisions. Second, slight modifications in the projected fertility trajectories of some very populous countries have yielded important differences in long-run forecasts. Third, future levels of life expectancy at birth are slightly higher in several countries within this latest projection; longer survival, like higher fertility, generates larger populations. Lastly, a small portion of the difference between revisions is attributable to changes in the projection methodology used for this revision.

Almost all of the additional 3.7 billion people from now to 2100 will enlarge the population of developing countries, which is projected to rise from 5.9 billion in 2013 to 8.2 billion in 2050 and to 9.6 billion in 2100, and will mainly be distributed among the population aged 15-59 (1.6 billion) and 60 or over (1.99 billion), as the number of children under age 15 in developing countries will hardly increase. Growth is expected to be particularly dramatic in the least developed countries of the world, which are projected to double in size from 898 million inhabitants in 2013 to 1.8 billion in 2050 and to 2.9 billion in 2100.

In contrast, the population of the more developed regions is expected to change minimally, passing from 1.25 billion in 2013 to 1.28 billion in 2100, and would decline were it not for the net increase due to migration from developing to developed countries, which is projected to average about 2.4 million persons annually from 2013 to 2050 and 1 million from 2050 to 2100.

At the country level, much of the overall increase between 2013 and 2050 is projected to take place in high-fertility countries, mainly in Africa, as well as countries with large populations such as India, Indonesia, Pakistan, the Philippines and the United States of America.

The results of the *2012 Revision* incorporate the findings of the most recent national population censuses, including from the 2010 round of censuses, and of numerous specialized population surveys carried out around the world. *The 2012 Revision* provides the demographic data and indicators to assess trends at the global, regional and national levels and to calculate many other key indicators commonly used by the United Nations system.

## **Population in developing countries still young**

Currently the population of the less developed regions is still young, with children under age 15 accounting for 28 per cent of the population and young persons aged 15 to 24 accounting for a further 18 per cent. In fact, the numbers of children and young people in the less developed regions are at an all time high (1.7 billion children and 1.1 billion young people), posing a major challenge for their countries, which are faced with the necessity of providing education and employment to large cohorts of children and youth. The situation in the least developed countries is even more pressing, as children under age 15 constitute 40 per cent of their population and young people account for a further 20 per cent.

In the more developed regions, children and youth account for 16 per cent and 12 per cent of the population, respectively. Whereas the number of children is expected to change little in the future, fluctuating from 206 million in 2013 to around 210 million in 2050 and then to 202 in 2100, the number of young people is projected to decrease from 152 million currently to 142 million in 2050 and then to 138 million in 2100.

In both the more and the less developed regions, the number of people in the main working ages, from 25 to 59 years, is at an all time high: 608 million and 2.6 billion, respectively. Yet, whereas in the more developed regions that number is expected to peak in 2013 and decline thereafter, reaching 533 millions in 2050 and 504 million in 2100, in the less developed regions it will continue rising, reaching 3.7 billion in 2050 and 4.1 billion in 2100. In developing countries, this population is projected to increase by over 400 million within the next decade. These population trends point to the urgency of supporting employment creation in developing countries as part of any strategy to address the slow economic recovery that the world is experiencing.

## **Globally, population aged 60 or over is the fastest growing**

In the more developed regions, the population aged 60 or over is increasing at 1.0 per cent annually before 2050 and 0.11 per cent annually from 2050 to 2100; it is expected to increase by 45 per cent by the middle of the century, rising from 287 million in 2013 to 417 million in 2050 and to 440 million in 2100. In the less developed regions, the population aged 60 or over is currently increasing at the fastest pace ever, 3.7 per cent annually in the period 2010-2015 and is projected to increase by 2.9 per cent annually before 2050 and 0.9 per cent annually from 2050 to 2100; its numbers are expected to rise from 554 million in 2013 to 1.6 billion in 2050 and to 2.5 billion in 2100.

## **Projected trends are contingent on fertility declines in developing countries**

Population ageing results mainly from declining fertility. According to the *2012 Revision*, fertility in the less developed regions as a whole is expected to drop from 2.69 children per woman in 2005-2010 to 2.29 in 2045-2050 and to 1.99 in 2095-2100. The reduction projected for the group of 49 least developed countries is even steeper: from 4.53 children per woman to 2.87 children per woman in 2045-2050 and to 2.11 in 2095-2100. To achieve such reductions, it is essential that access to family planning should expand, particularly in the least developed countries. In 2013, the use of modern contraceptive methods in the least developed countries is estimated at around 38 per cent among women of reproductive age who are married or in union, and a further 23 per cent of such women have an unmet need for family planning. The urgency of realizing the projected reductions of fertility is brought into focus by considering that, if fertility were to remain constant at the levels estimated for 2005-2010, the population of the less developed regions would increase to 9.8 billion in 2050 and to 27.5 billion in 2100 instead of the 8.2 billion and 9.6 billion projected by assuming that fertility declines. That is, without further reductions of fertility, the world population by 2100 could increase by nearly six times as much as currently expected.

## ***Key Findings***

1. In July 2013, the world population will reach 7.2 billion, 648 million more than in 2005 or an average gain of 81 million persons annually. Even assuming that fertility levels will continue to decline, the world population is still expected to reach 9.6 billion in 2050 and 10.9 billion in 2100, according to the medium-variant projection.
2. Future population growth is highly dependent on the path that future fertility will take. In the medium variant, global fertility declines from 2.53 children per woman in 2005-2010 to 2.24 children per woman in 2045-2050 and 1.99 children per woman in 2095-2100. If fertility were to remain, on average, half a child above the levels projected in the medium variant, world population would reach 10.9 billion by 2050 and 16.6 billion by 2100. A fertility path half a child below the medium variant would lead to a population of 8.3 billion by mid-century and 6.8 billion by the end of the century. Consequently, population growth until 2050 is almost inevitable even if the decline of fertility accelerates.
3. In the more developed regions, fertility has increased slightly in recent years, with an estimated level of 1.66 children per woman in 2005-2010. As a result of slightly higher projected fertility and a sustained net in-migration averaging 2.4 million annually from 2013 to 2050, the population of the more developed regions is still expected to increase slightly from 1.25 billion in 2013 to 1.3 billion in 2050 and then to fall back to about 1.28 billion by 2100.
4. The 49 least developed countries (LDCs) as a whole still have the fastest growing population in the world, at 2.3 per cent per year. Although this rate of increase is expected to slow significantly over the next decades, the population of the LDCs is projected to double by mid-century, from 898 million in 2013 to 1.8 billion in 2050, further increasing to 2.9 billion in 2100. Growth in the rest of the developing world is also projected to be robust, though less rapid, with its population rising from 5.0 billion in 2013 to 6.4 billion 2050 and then to 6.6 billion in 2100 according to the medium variant.
5. Slow population growth brought about by reductions in fertility leads to population ageing; that is, it produces populations where the proportion of older persons increases while that of younger persons decreases. In the more developed regions, 23 per cent of the population is already aged 60 years or over and that proportion is projected to reach 32 per cent in 2050 and 34 per cent in 2100. In developed countries as a whole, the number of older persons has already surpassed the number of children (persons under age 15), and by 2050 the number of older persons in developed countries will be nearly twice the number of children; by 2100, that ratio will be closer to 2.2.
6. Population ageing is less advanced in developing countries. Nevertheless, the populations of a majority of them are poised to enter a period of rapid population ageing. In developing countries as a whole, 9 per cent of the population today is aged 60 years or over, but that proportion will more than double by 2050, reaching 19 per cent that year, and triple by 2100, reaching 27 per cent.
7. Globally, the number of persons aged 60 or over is expected to more than triple by 2100, increasing from 841 million in 2013 to 2 billion in 2050 and close to 3 billion in 2100. Furthermore, already 66 per cent of the world's older persons live in the less developed regions and by 2050, 79 per cent will do so. By 2100, this figure will reach 85 per cent.
8. In ageing populations, the number of persons grows faster and faster the higher the age range considered. Thus, whereas the number of persons aged 60 or over is expected to more than triple by 2100, that of persons aged 80 or over is projected to increase almost seven-fold by 2100, increasing

from 120 million in 2013 to 392 million in 2050, and 830 million in 2100. Today, just over half of all persons aged 80 and over live in developing countries, but that share is expected to reach 68 per cent in 2050.

9. Although the population of all countries is expected to over the foreseeable future, the population will remain relatively young in countries where fertility is still high.
10. High population growth rates prevail in many developing countries, most of which are on the UN's list of 49 least developed countries (LDCs). Between 2013 and 2100, the populations of 35 countries, most of them LDCs, could triple or more. Among them, the populations of Burundi, Malawi, Mali, Niger, Nigeria, Somalia, Uganda, United Republic of Tanzania and Zambia are projected to increase at least five-fold by 2100.
11. In sharp contrast, the populations of 43 countries or areas are expected to decrease between 2013 and 2050; of these, 40 are expected to continue to decrease between 2050 and 2100. Several countries are expected to see their populations decline by more than 15 per cent by 2050, including Belarus, Bulgaria, Croatia, Cuba, Georgia, Latvia, Lithuania, Republic of Moldova, Romania, the Russian Federation, Serbia, and Ukraine.
12. Half of all population growth is concentrated in a small number of countries. During 2013-2100, eight countries are expected to account for over half of the world's projected population increase: Nigeria, India, the United Republic of Tanzania, the Democratic Republic of Congo, Niger, Uganda, Ethiopia and the United States of America, listed according to the size of their contribution to global population growth.
13. Fertility has continued to fall in the vast majority of countries in the less developed regions. Among countries with at least 90,000 inhabitants in 2013, the number of developing countries with high fertility (5 children or more per woman) declined from 58 in 1990-1995 to 31 in 2005-2010, and their share of the world population dropped from 13 per cent to 9 per cent. Over the same period, the number of developing countries with fertility levels below replacement increased from 14 to 32.
14. Most developed countries have had below-replacement fertility (below 2.1 children per woman) for two or three decades. Among the 45 developed countries with at least 90,000 inhabitants in 2013, 41 and 43 had below-replacement fertility in 1990-1995 and 2005-2010, respectively. However, between the 2000-2005 and 2005-2010, 36 developed countries experienced slight increases in fertility. For the more developed regions as a whole, total fertility increased from 1.58 to 1.66 children per woman between those two periods. Yet, in 2005-2010, 26 developed countries, including Japan and most of the countries in Southern and Eastern Europe, still had fertility levels below 1.5 children per woman.
15. In 2005-2010, the 75 countries with below-replacement fertility accounted for 48 per cent of the world's population. The most populous countries with below replacement fertility are China, the United States of America, Brazil, the Russian Federation, Japan, Viet Nam, Germany, the Islamic Republic of Iran and Thailand, in order of population size.
16. Globally, total fertility is expected to fall from 2.53 children per woman in 2005-2010 to 2.24 in 2045-2050 and to 1.99 in 2095-2100 according to the medium variant. However, in the more developed regions, total fertility is projected to increase from 1.66 children per woman currently to 1.85 in 2045-2050 and 1.93 in 2095-2100. A major reduction of fertility is projected for the group of least developed countries (from 4.53 to 2.87 children per woman in 2045-2050 and to 2.11 in 2095-2100) and the fertility of the rest of the developing world is expected to drop from 2.40

children per woman currently to 2.09 in 2045-2050 and 1.93 in 2095-2100, thus converging to the fertility levels expected for the more developed countries by the end of the century.

17. The median age, that is, the age that divides the population in two halves of equal size, is an indicator of population ageing. Globally, the median age is projected to increase from 29 to 36 years between 2013 and 2050 and to 41 years in 2100. The median age is higher in countries or regions that have been experiencing low fertility for a long time. Europe today has the oldest population, with a median age of 41 years in 2013, which is expected to reach 46 years in 2050 and then 47 years in 2100.
18. Countries where fertility remains high and has declined only moderately will experience the slowest population ageing. The median age for the least developed countries as a whole is below 20 years in 2013. It is projected to reach 26 years in 2050 and 36 years in 2100.
19. Increasing longevity also contributes to population ageing. Globally, life expectancy at birth is projected to rise from 69 years in 2005-2010 to 76 years in 2045-2050 and to 82 years in 2095-2100. In the more developed regions, the projected increase is from 77 years in 2005-2010 to 83 years in 2045-2050 and to 89 years in 2095-2100, while in the less developed regions the increase is expected to be from 67 years in 2005-2010 to 75 years by mid-century and 81 years by the end of the century.
20. Life expectancy remains low in the least developed countries, at just 58 years in 2005-2010. Although it is projected to reach 70 years in 2045-2050 and 78 years in 2095-2100, realizing such an increase is contingent on reducing the spread of HIV and combating successfully other infectious diseases as well as non-communicable diseases. Similar challenges must be confronted if the projected increase of life expectancy in the rest of the developing countries, from under 69 years today to 76 years by mid-century and to 82 years by the end of the century, is to be achieved.
21. The under-five mortality, expressed as the probability of dying between birth and the exact age of five, is an important indicator of development and the well-being of children. In 1950-1955, 21 per cent of all children born worldwide did not reach their fifth birthday. By 2005-2010, this rate had fallen to 59 deaths per 1,000 births. However, this rate in least developed regions still remains at a relatively high level, around 112 deaths per 1,000 births in 2005-2010, falling from 172 deaths per 1,000 births in 1990-95.
22. Among the more developed regions, Eastern Europe has the lowest life expectancy and has experienced reductions in life expectancy at birth since the late 1980s. In 2005-2010 life expectancy in the region increased somewhat but at 69.5 years it was almost the same as it had been in 1970-1975 (69.2 years). Despite having recorded some recovery since the late 1990s, Belarus, the Republic of Moldova, the Russian Federation and Ukraine have currently the lowest life expectancies among developed countries (below 70 years).
23. Although the HIV/AIDS epidemic continues to be a major global health concern, adult HIV prevalence reached a peak over the past decade in most countries that are highly affected by the epidemic; a growing number of them are reaching and maintaining lower prevalence levels. Nevertheless, in countries where prevalence has been high, the impact of the epidemic in terms of morbidity, mortality and slower population growth continues to be evident. Thus, in Southern Africa, the region with the highest prevalence of the disease, life expectancy has fallen from 62 years in 1990-1995 to 52 years in 2005-2010 and is only recently beginning to increase. Nevertheless, life expectancy in the region is not expected to recover to the level where it was in the early 1990s until the year 2030.

24. Given the low fertility prevailing in developed countries, deaths are expected to exceed births for the foreseeable future. Consequently, the population of the more developed regions will decrease if the excess of deaths over births is not counterbalanced by a net migration gain. During 2010-2050, the net number of international migrants to more developed regions is projected to be about 96 million, whereas the excess of deaths over births is projected to be 33 million, implying an overall growth of about 63 million.
25. In terms of annual averages, the major net receivers of international migrants during 2010-2050 are projected to be the United States of America (1,000,000 annually), Canada (205,000), the United Kingdom (172,500), Australia (150,000), Italy (131,250), the Russian Federation (127,500), France (106,250) and Spain (102,500). The major countries of net emigration are projected to be Bangladesh (-331,000 annually), China (-300,000), India (-284,000), Mexico (-210,000), Pakistan (-170,000), Indonesia (-140,000) and the Philippines (-92,500). Economic and demographic asymmetries across countries that may persist are likely to remain powerful generators of international migration within the medium-term future.





## I. WORLD POPULATION TRENDS

### A. POPULATION SIZE AND GROWTH

In 2013 the world population reached 7.2 billion with 5.9 billion (or 82.5 per cent of the world's total) living in the less developed regions (table I.1). Out of these, 898 million reside in the 49 least developed countries and account for 12.5 per cent of the world population. More developed countries, whose total population amounts to 1.25 billion inhabitants, account for 17.5 per cent of the world population (table I.2).

According to the medium variant, the world population is projected to reach 9.6 billion persons by 2050, that is, 2.4 billion more than in 2013, an increase slightly under the combined populations of China and India today. Most of this growth is projected to come from developing countries. Between 2013 and 2050, the population of the more developed regions will remain largely unchanged at around 1.3 billion inhabitants, but the population of the less developed regions is projected to rise from 5.9 billion in 2013 to 8.3 billion in 2050. At the same time, the population of the least developed countries is projected to double, from 902 million inhabitants in 2013 to 1.8 billion in 2050. Consequently, by 2050, 86.4 per cent of the world population is expected to live in the less developed regions, including 19.0 per cent in the least developed countries, whereas only 13.6 per cent will live in the more developed regions.

According to the medium variant, the world population is projected to reach 10.9 billion persons by 2100, that is, 3.7 billion more than in 2013 and 1.3 billion more than in 2050. During the second part of the 21<sup>st</sup> century, the growth of the world population will continue to occur mainly in the less developed regions. The population of the more developed regions will remain relatively stable at 1.3 billion, but the population of the less developed regions is projected to rise from 8.3 billion in 2050 to 9.6 billion in 2100. The population growth in the less developed regions will predominantly occur in the least developed countries whose population is projected to increase by almost 1.1 billion between 2050 and 2100. By 2100, 88.2 per cent of the world population is expected to live in the less developed regions, including 27 per cent in the least developed countries; only 11.8 per cent will live in the more developed regions.

Contrasting population trends across major areas, it worth noting that Asia's population is expected to continue to grow during 2013-2050 while its population should decline in the second half of the century; yet, in Africa, the population is expected to grow by 1.8 billion during the second half of the century, substantially more than during the earlier period of 2013-2050, that is by 1.3 billion. During 2050-2100, Africa's population increase will surpass that of the world.

The world population in 2050 would be substantially higher if the decline in fertility projected in the medium variant fails to be realized. If fertility were to remain constant at current levels in all countries, world population would increase significantly, reaching 11.1 billion by 2050. In the high variant, where fertility is assumed to remain mostly half a child higher than in the medium variant, the world population in 2050 would reach 10.9 billion persons. In the low variant, where fertility is projected to be half a child lower than in the medium variant, world population would still grow, but only to reach 8.3 billion by 2050. According to the low variant, the population of the least developed countries would nearly double, to reach 1.6 billion by 2050, but the population of the more developed regions would decline to 1.15 billion.

TABLE I.1. POPULATION OF THE WORLD, DEVELOPMENT GROUPS AND MAJOR AREAS, 1950, 1980, 2013, 2050 AND 2100, ACCORDING TO DIFFERENT VARIANTS

<i>Development group or major area</i>	<i>Population (millions)</i>			<i>Population in 2050 (millions)</i>				<i>Population in 2100 (millions)</i>			
	<i>1950</i>	<i>1980</i>	<i>2013</i>	<i>Low</i>	<i>Medium</i>	<i>High</i>	<i>Constant-fertility</i>	<i>Low</i>	<i>Medium</i>	<i>High</i>	<i>Constant-fertility</i>
World.....	2 526	4 449	7 162	8 342	9 551	10 868	11 089	6 750	10 854	16 641	28 646
More developed regions .....	813	1 083	1 253	1 149	1 303	1 470	1 268	801	1 284	1 960	1 152
Less developed regions.....	1 713	3 366	5 909	7 193	8 248	9 398	9 821	5 949	9 570	14 682	27 494
Least developed countries.....	195	393	898	1 594	1 811	2 043	2 552	1 944	2 928	4 266	13 590
Other less developed countries .....	1 518	2 973	5 011	5 599	6 437	7 355	7 269	4 005	6 642	10 416	13 904
Africa.....	229	478	1 111	2 119	2 393	2 686	3 210	2 826	4 185	6 007	17 221
Asia .....	1 396	2 634	4 299	4 482	5 164	5 912	5 805	2 739	4 712	7 558	8 971
Europe .....	549	695	742	622	709	804	673	383	639	1 005	508
Latin America and the Caribbean .....	168	364	617	674	782	902	885	420	736	1 215	1 298
Northern America.....	172	255	355	395	446	500	453	335	513	754	535
Oceania.....	13	23	38	50	57	64	62	46	70	102	114

Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2013). *World Population Prospects: The 2012 Revision*. New York: United Nations.

TABLE I.2. PERCENTAGE DISTRIBUTION OF THE WORLD POPULATION BY DEVELOPMENT GROUP AND MAJOR AREA, ESTIMATES AND PROJECTIONS ACCORDING TO DIFFERENT VARIANTS, 1950-2100

<i>Development group or major area</i>	<i>1950</i>	<i>1980</i>	<i>2013</i>	<i>2050</i>				<i>2100</i>			
				<i>Low</i>	<i>Medium</i>	<i>High</i>	<i>Constant-fertility</i>	<i>Low</i>	<i>Medium</i>	<i>High</i>	<i>Constant-fertility</i>
World.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
More developed regions .....	32.2	24.3	17.5	13.8	13.6	13.5	11.4	11.9	11.8	11.8	4.0
Less developed regions.....	67.8	75.7	82.5	86.2	86.4	86.5	88.6	88.1	88.2	88.2	96.0
Least developed countries.....	7.7	8.8	12.5	19.1	19.0	18.8	23.0	28.8	27.0	25.6	47.4
Other less developed countries .....	60.1	66.8	70.0	67.1	67.4	67.7	65.6	59.3	61.2	62.6	48.5
Africa.....	9.1	10.8	15.5	25.4	25.1	24.7	29.0	41.9	38.6	36.1	60.1
Asia .....	55.3	59.2	60.0	53.7	54.1	54.4	52.3	40.6	43.4	45.4	31.3
Europe .....	21.7	15.6	10.4	7.5	7.4	7.4	6.1	5.7	5.9	6.0	1.8
Latin America and the Caribbean .....	6.6	8.2	8.6	8.1	8.2	8.3	8.0	6.2	6.8	7.3	4.5
Northern America.....	6.8	5.7	5.0	4.7	4.7	4.6	4.1	5.0	4.7	4.5	1.9
Oceania.....	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.7	0.6	0.6	0.4

Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2013). *World Population Prospects: The 2012 Revision*. New York: United Nations.

Most of the world population lives in a few countries. In 2013, 37 per cent of the world population lived in China and India. A further eight countries accounted for a further 22 per cent of the earth's inhabitants, namely, the United States of America, Indonesia, Brazil, Pakistan, Nigeria, Bangladesh, the Russian Federation and Japan, in order of population size (tables S.1 and S.3). However, most countries of the world have small populations. Seventy-five per cent of the 233 countries or areas covered by the *2012 Revision* had populations with fewer than 20 million inhabitants in 2013 and, as a group, they account for 10 per cent of the world's population.

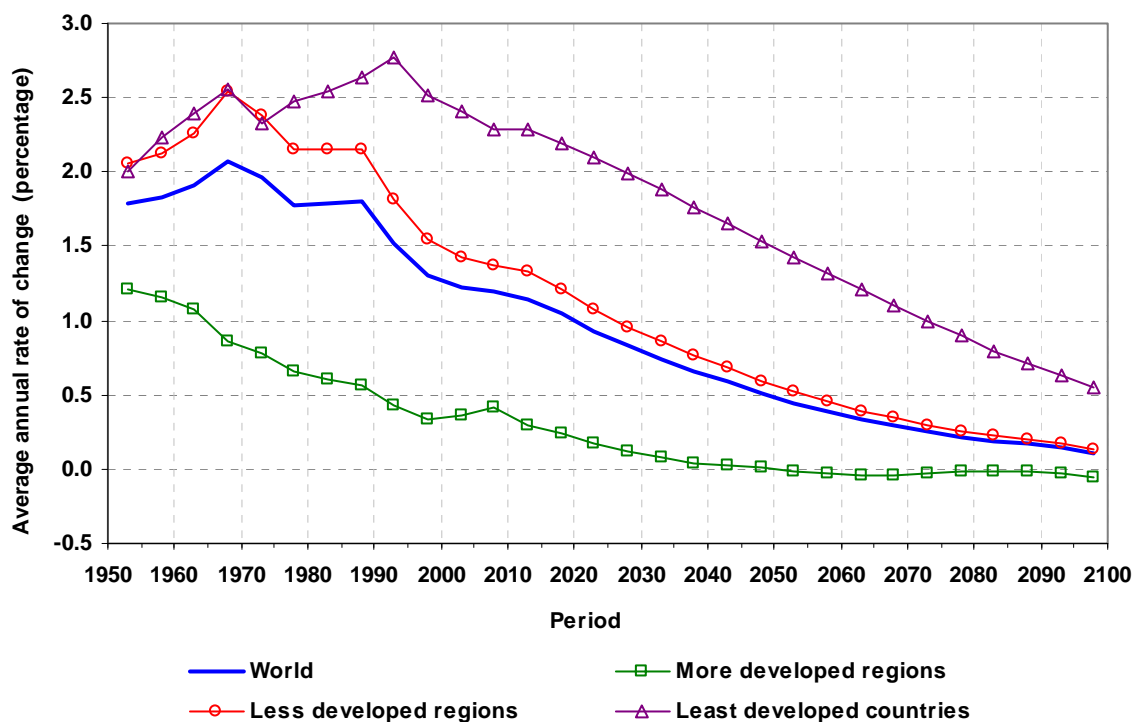
By 2028, the population of India is projected to surpass that of China and taken together the two countries will account then for about 35 per cent of the world population. By 2050, five least developed countries—Bangladesh, Ethiopia, the Democratic Republic of the Congo, the United Republic of Tanzania and Uganda—will be among the twenty most populous countries in the world. By 2100, among the twenty most populous countries in the world, eight will be least developed countries—the United Republic of Tanzania, the Democratic Republic of the Congo, Ethiopia, Uganda, Niger, Bangladesh, Sudan and Mozambique (tables S.2 and S.3).

Increments in the world population are also largely concentrated in a few countries, generally the most populous. Thus, during 2005-2010, eight countries—India, China, Nigeria, Indonesia, Pakistan, the United States of America, Ethiopia, and Brazil, in order of population increment—accounted for just over half of the population increase at the world level (table S.4).

Over most of human history, the world population grew very slowly if at all. Growth rates began increasing slowly during the 17<sup>th</sup> or 18<sup>th</sup> centuries as mortality started to decline. With accelerating gains in longevity, the growth rate of the world population increased, especially during the 20<sup>th</sup> century, when it reached a peak at 2.07 per cent per year in 1965-1970 (figure I.1). Since then, the speed of population growth has been decelerating, largely as a result of falling fertility in the developing world. By 2005-2010, the population growth rate at the world level had reached 1.20 per cent per year and is projected to decline to 0.51 per cent per year by 2045-2050 and to 0.11 by 2095-2100. As shown in table S.5, several countries both in the more developed regions and the less developed regions are expected to experience declining populations between 2013 and 2050.

However, because fertility decline has not occurred simultaneously in all countries, the pace of population growth still differs considerably among development groups. Thus, whereas the population of the more developed regions rose at an annual rate of 0.42 per cent during 2005-2010, that of the less developed regions increased more than three times faster, at 1.37 per cent annually, and the least developed countries as a group have experienced even more rapid population growth, at 2.28 per cent per year. Such differences are expected to persist in the future. According to the medium variant, the population of the more developed regions will be nearly stagnating by 2045-2050, whereas the population of the less developed regions will still be rising at an annual rate of 0.60 per cent per year (figure I.1). More importantly, the population of the least developed countries will likely be increasing at a robust annual rate of 1.54 per cent. By the end of the 21<sup>st</sup> century, the population of the less developed regions will reach a relatively low annual rate of population growth, similar to that of the more developed regions in earlier years. Yet, the population growth rate of the least developed countries, albeit declining, will still amount to 0.55 per cent per year in 2095-2100. Average annual rates of population change are also presented in table I.3 for selected periods, depicting in addition the different levels of population change across variants within the projections.

**Figure I.1. Average annual rate of population change for the world and development groups, 1950-2100**



Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2013). *World Population Prospects: The 2012 Revision*. New York: United Nations.

TABLE I.3. AVERAGE ANNUAL RATE OF POPULATION CHANGE FOR THE WORLD, DEVELOPMENT GROUPS AND MAJOR AREAS, FOR SELECTED PERIODS AND DIFFERENT VARIANTS (PERCENTAGE)

<i>Development group or major area</i>	<i>1950-2013</i>	<i>1950-1980</i>	<i>1980-2013</i>	<i>2013-2050</i>				<i>2050-2100</i>			
				<i>Low</i>	<i>Medium</i>	<i>High</i>	<i>Constant-fertility</i>	<i>Low</i>	<i>Medium</i>	<i>High</i>	<i>Constant-fertility</i>
World.....	1.65	1.89	1.44	0.41	0.78	1.13	1.18	-0.69	0.26	1.11	2.20
More developed regions.....	0.69	0.96	0.44	-0.23	0.11	0.43	0.03	-0.97	-0.03	0.82	-0.25
Less developed regions.....	1.97	2.25	1.71	0.53	0.90	1.25	1.37	-0.65	0.30	1.15	2.41
Least developed countries.....	2.42	2.33	2.51	1.55	1.89	2.22	2.82	0.14	0.96	1.71	4.03
Other less developed countries .....	1.90	2.24	1.58	0.30	0.68	1.04	1.01	-0.95	0.06	0.96	1.54
Africa.....	2.51	2.46	2.55	1.75	2.07	2.39	2.87	0.33	1.12	1.84	3.95
Asia.....	1.79	2.12	1.48	0.11	0.50	0.86	0.81	-1.27	-0.18	0.76	1.10
Europe .....	0.48	0.78	0.20	-0.48	-0.12	0.22	-0.26	-1.23	-0.21	0.70	-0.67
Latin America and the Caribbean .....	2.07	2.58	1.60	0.24	0.64	1.03	0.98	-1.24	-0.12	0.88	1.01
Northern America .....	1.16	1.32	1.01	0.29	0.62	0.93	0.66	-0.57	0.28	1.05	0.36
Oceania.....	1.76	1.98	1.55	0.74	1.07	1.38	1.31	-0.42	0.41	1.17	1.39

Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2013). *World Population Prospects: The 2012 Revision*. New York: United Nations.

## B. POPULATION AGE COMPOSITION

The primary demographic consequence of fertility decline, especially if combined with increases in life expectancy, is population ageing, a process whereby the proportion of older persons in the population increases and that of younger persons declines. In 1950, just 8 per cent of the world population was aged 60 years or over. By 2013 that proportion had risen to 12 per cent and it is expected to reach 21 per cent in 2050 (table I.4; see table S.6 for figures at the country level). Globally, the number of older persons (aged 60 years or over) will increase by a factor of 2.4, passing from 841 million in 2013 to more than 2 billion in 2050. In contrast, the number of children (persons under age 15) is projected to hardly increase over the next 37 years, passing from 1.88 billion in 2013 to 2.03 billion in 2050 and their share of the total population will drop from 26 per cent in 2013 to 21 per cent in 2050. During the second half of the 21<sup>st</sup> century, the number of older persons (aged 60 years or over) will increase by close to a billion, to reach almost 3 billion in 2100, and the number of children will decrease by 90 million, to reach 1.94 billion in 2100.

Increases in the median age, the age at which half the population is older and half is younger than that age, are indicative of population ageing (table I.5). In 2013, 30 countries or areas, almost all of them developed countries, had a median age higher than 40 years. Japan led the group with a median age of 45.9 years, followed closely by Germany, with median age of 45.5 years, and Italy, with median age of 44.3 years (tables S.7 and S.8). In contrast, the median ages of Niger, Uganda and Chad in 2013 were below 16 years, making their populations the youngest on the planet.

By 2050, close to 100 countries are expected to have a median age above 40 years, more than half of which will be countries located in the developing world. That is, population ageing, which is already pervasive in developed countries, is expected to be common in the developing world of the future and is projected to occur more rapidly in developing countries than it did in their developed counterparts. In 2100, it is anticipated that 158 countries will have a median age above 40 years, more than two thirds of which will be located in the developing world.

Despite the general trend toward population ageing, countries that still have relatively high fertility will have a younger population than the rest in 2050 (table I.5). Many least developed countries are in this group. In 2050, 24 countries are projected to have median ages below 25 years; among those, 20 are least developed countries. The youngest populations on Earth are expected to be in Niger, Mali, Zambia, and Somalia, in increasing order according to the value of their respective median ages (tables I.5 and S.7). Because the least developed countries are expected to continue having some of the highest fertility levels on Earth after 2050, several of these countries will remain with the youngest populations in 2100. By that date, the median ages of the populations of Zambia, Niger, Mali, Somalia, and several other countries are expected to be below 35 years.

TABLE I.4. DISTRIBUTION OF THE POPULATION OF THE WORLD, DEVELOPMENT GROUPS AND MAJOR AREAS BY BROAD AGE GROUPS, 2013, 2050 AND 2100 (MEDIUM VARIANT)

<i>Development group or major area</i>	<i>Population in 2013 (millions)</i>						<i>Population in 2050 (millions)</i>						<i>Population in 2100 (millions)</i>					
	<i>0-14</i>	<i>15-24</i>	<i>25-59</i>	<i>60+</i>	<i>80+</i>	<i>Total</i>	<i>0-14</i>	<i>15-24</i>	<i>25-59</i>	<i>60+</i>	<i>80+</i>	<i>Total</i>	<i>0-14</i>	<i>15-24</i>	<i>25-59</i>	<i>60+</i>	<i>80+</i>	<i>Total</i>
World	1 878	1 205	3 238	841	120	7 162	2 034	1 312	4 184	2 020	392	9 551	1 944	1 325	4 600	2 984	830	10 854
More developed regions	206	152	608	287	57	1 253	210	142	533	417	124	1 303	202	138	504	440	164	1 284
Less developed regions	1 672	1 053	2 630	554	63	5 909	1 825	1 169	3 651	1 603	268	8 248	1 743	1 187	4 096	2 544	666	9 570
Least developed countries	360	180	311	49	5	898	545	319	763	183	21	1 811	618	411	1 299	600	121	2 928
Other less developed countries	1 313	874	2 319	505	59	5 011	1 279	850	2 888	1 420	247	6 437	1 125	777	2 797	1 944	545	6 642
Africa	454	217	380	60	5	1 111	771	437	973	212	20	2 393	907	603	1 879	795	141	4 185
Asia	1 065	738	2 027	469	58	4 299	925	642	2 357	1 239	220	5 164	735	514	1 950	1 511	442	4 712
Europe	116	87	370	170	33	742	109	73	289	238	67	709	98	68	251	222	82	639
Latin America and the Caribbean	166	109	276	65	10	617	137	97	351	196	44	782	107	75	286	267	99	736
Northern America	68	49	168	71	13	355	80	55	189	122	36	446	85	57	204	167	58	513
Oceania	9	6	17	6	1	38	12	8	25	13	4	57	11	8	29	22	8	70
Percentage distribution by age group																		
World	26	17	45	12	1.7	100	21	14	44	21	4.1	100	18	12	42	27	7.6	100
More developed regions	16	12	48	23	4.5	100	16	11	41	32	9.5	100	16	11	39	34	13	100
Less developed regions	28	18	45	9.4	1.1	100	22	14	44	19	3.2	100	18	12	43	27	7.0	100
Least developed countries	40	20	35	5.4	0.5	100	30	18	42	10	1.1	100	21	14	44	21	4.1	100
Other less developed countries	26	17	46	10	1.2	100	20	13	45	22	3.8	100	17	12	42	29	8.2	100
Africa	41	20	34	5.4	0.5	100	32	18	41	8.9	0.9	100	22	14	45	19	3.4	100
Asia	25	17	47	11	1.3	100	18	12	46	24	4.3	100	16	11	41	32	9.4	100
Europe	16	12	50	23	4.5	100	15	10	41	34	9.5	100	15	11	39	35	13	100
Latin America and the Caribbean	27	18	45	11	1.6	100	18	12	45	25	5.7	100	15	10	39	36	13	100
Northern America	19	14	47	20	3.7	100	18	12	42	27	8.1	100	17	11	40	33	11	100
Oceania	24	15	45	16	2.9	100	20	13	43	23	6.2	100	16	11	41	31	11	100

Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2013). *World Population Prospects: The 2012 Revision*. New York: United Nations.

TABLE I.5. MEDIAN AGE FOR THE WORLD, DEVELOPMENT GROUPS AND MAJOR AREAS,  
1950, 1980, 2013, 2050 AND 2100, MEDIUM VARIANT

<i>Development group or major area</i>	<i>Median age (years)</i>				
	<i>1950</i>	<i>1980</i>	<i>2013</i>	<i>2050</i>	<i>2100</i>
World	23.5	22.6	29.2	36.1	41.2
More developed regions	28.5	31.9	40.5	44.5	46.3
Less developed regions	21.4	20.0	27.2	34.9	40.6
Least developed countries	19.3	17.6	19.7	26.4	35.9
Other less developed countries	21.6	20.3	28.7	37.6	42.8
Africa	19.2	17.6	19.4	24.7	34.9
Asia	22.0	21.0	29.7	39.8	45.4
Europe	28.9	32.7	40.9	45.7	46.8
Latin America and the Caribbean	19.9	19.8	28.3	40.6	48.1
Northern America	29.8	30.0	37.7	40.9	44.6
Oceania	27.9	26.4	32.6	37.0	44.1

*Source:* Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2013).  
*World Population Prospects: The 2012 Revision*. New York: United Nations.

NOTE: Only countries or areas with 90,000 persons or more in 2013 are considered.

The more developed regions have been leading the process of population ageing and their experience provides a point of comparison for the expected ageing of the population of the less developed regions. In 1950, the number of children (persons under age 15) in the more developed world was more than twice the number of older persons (those aged 60 years or over), with children accounting for 27 per cent of the total population and the older persons for only 12 per cent (table I.4; 1950 data not shown). By 2013, the proportion of older persons in the more developed regions had surpassed that of children (23 per cent versus 16 per cent) and in 2050, the proportion of older persons is expected to be double that of children (32 per cent versus 16 per cent). In 2050, the number of older persons in more developed regions is projected to be more than four times their number in 1950 (417 million versus 94 million) while the number of children is projected to decline slightly from 223 million in 1950 to 210 million in 2050. Because the fertility of the more developed regions is projected to increase, albeit slowly, over most of the projection period, population ageing will slow down. As a result, between 2050 and 2100 the number of older persons in the more developed regions is expected to increase by only 23 million, to reach 440 million and the number of children under age 15 is expected to remain fairly constant at just over 200 million.

Until 2013, population ageing had been considerably slower in the less developed regions where fertility has been still relatively high. The proportion of children declined from 38 per cent in 1950 to 28 per cent in 2013, while the proportion of older persons increased from 6 per cent to 9 per cent (table I.4; 1950 data not shown). However, a period of more rapid population ageing lies ahead for the less developed regions. By 2050, their proportion of older persons is projected to reach 19 per cent, whereas their proportion of children is projected to decline to 22 per cent. After 2050, population ageing in the less developed regions will continue but at a slower pace. By 2100, the proportion of older persons is projected to increase to 27 per cent and the proportion of children is projected to decline to 18 per cent.

Trends in the number of persons of working age (those aged 15 to 59 years) are particularly important for all countries. The proportion of the population in those ages is an important factor related to the potential for economic growth. In the more developed regions, the proportion of the population of working age decreased from 61 per cent in 1950 to 60 per cent in 1970 and then increased steadily to reach 63 per cent in 2005. Since then, that proportion has been declining. Its value is projected to drop



from 61 per cent in 2013 to 52 in 2050 and then reach 50 per cent in 2100 (table I.4). That is, the major change in the proportion of the population of working ages in the more developed regions will occur over the next 40 years if, as projected in the medium variant, the fertility of the more developed regions rises slowly for the rest of the century.

In the less developed regions, the proportion of the population of working age is expected to decline slightly, passing from 62 per cent in 2013 to 58 per cent in 2050 and 55 per cent in 2100. However, among the least developed countries, that proportion will rise from 55 per cent in 2013 to 60 per cent in 2050 and decline thereafter to 58 per cent in 2100, an increase that represents both an opportunity and a challenge: an opportunity to spur economic growth provided that the challenge of creating gainful employment for the growing numbers of persons of working age is met.

Among the older population, the number and proportion of the oldest-old, that is, persons aged 80 years or over, is rising. In 2013, there were 120 million oldest-old persons in the world, corresponding to 1.7 per cent of the world population (table I.4). By 2050, this segment of the population is projected to reach 392 million or 4.1 per cent of the world population and by 2100 it would ascend to 830 million or 7.6 per cent of the population. The group of oldest-old is the fastest growing segment of the world population. Particularly rapid increases in this group are expected in the less developed regions, where the oldest-old are projected to increase from 63 million in 2013 to 268 million in 2050 and to 666 million in 2100, implying an average annual rate of increase of 3.9 per cent during 2013-2050 and of 1.8 per cent per year during 2050-2100 (table I.6). Over half of the oldest-old already live in the less developed regions but they are expected to become increasingly concentrated in developing countries. Thus, in 2050, 68 per cent of all persons aged 80 or over are expected to live in developing countries and by 2100 80 per cent are expected to do so.

In 2013, 74 countries had populations where persons aged 80 years or older accounted for more than 1.68 per cent of the population (the proportion of oldest-old in the world). The oldest-old accounted for over 7.3 per cent of the population of Japan and for more than 5.5 per cent of the populations of Italy, France, Greece, Spain and Belgium, ordered according to the proportion of oldest-old (table S.6). By 2050, 103 countries are expected to have populations where persons aged 80 or over account for more than 4.10 per cent of the population (the proportion of the oldest-old at the global level in 2050). The oldest-old are projected to account for over 10 per cent of the population in 23 countries. In 2100, the proportion of the oldest-old is projected to exceed 7.83 per cent (their share of the world population) in 128 countries and in 109 of them, the proportion of persons aged 80 years or over is projected to exceed 10 per cent.

Just as the overall population, the oldest-old tend to be concentrated in the most populous countries. In 2013, 22.6 million lived in China, 11.9 million in the United States and 9.9 million in India. In 2050, those countries will still have the largest numbers of persons aged 80 years or over: 90.4 million in China, 37.2 million in India and 31.7 million in the United States. By 2100, China is projected to have 120 million persons of aged 80 or over, India 116 million and the United States 52 million.

TABLE I.6. AVERAGE ANNUAL RATES OF CHANGE OF THE TOTAL POPULATION AND THE POPULATION IN BROAD AGE GROUPS, BY DEVELOPMENT GROUP AND MAJOR AREA, 2013-2050 AND 2050-2100 (MEDIUM VARIANT)

<i>Development group or major area</i>	<i>2013-2050</i>					<i>2050-2100</i>				
	<i>0-14</i>	<i>15-59</i>	<i>60+</i>	<i>80+</i>	<i>Total population</i>	<i>0-14</i>	<i>15-59</i>	<i>60+</i>	<i>80+</i>	<i>Total population</i>
World	0.22	0.50	2.37	3.19	0.78	-0.09	0.13	0.78	1.50	0.26
More developed regions	0.05	-0.29	1.01	2.10	0.11	-0.08	-0.09	0.11	0.56	-0.03
Less developed regions	0.24	0.63	2.87	3.90	0.90	-0.09	0.15	0.92	1.82	0.30
Least developed countries	1.12	2.00	3.59	4.12	1.89	0.25	0.83	2.37	3.53	0.96
Other less developed countries	-0.07	0.33	2.79	3.88	0.68	-0.26	-0.11	0.63	1.58	0.06
Africa	1.43	2.22	3.41	3.67	2.07	0.33	1.03	2.65	3.87	1.12
Asia	-0.38	0.11	2.63	3.62	0.50	-0.46	-0.40	0.40	1.40	-0.18
Europe	-0.16	-0.60	0.91	1.91	-0.12	-0.22	-0.24	-0.14	0.41	-0.21
Latin America and the Caribbean	-0.51	0.27	2.96	4.11	0.64	-0.49	-0.45	0.62	1.60	-0.12
Northern America	0.43	0.32	1.48	2.70	0.62	0.12	0.13	0.62	0.96	0.28
Oceania	0.65	0.88	2.05	3.14	1.07	-0.04	0.21	1.03	1.54	0.41

*Source:* Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2013). *World Population Prospects: The 2012 Revision*. New York: United Nations.

NOTE: Only countries or areas with 90,000 persons or more in 2013 are considered.

## II. FERTILITY

According to the *2012 Revision*, total fertility—that is, the average number of children a woman would bear if fertility rates remained unchanged during her lifetime—is 2.53 children per woman in 2005-2010 at the world level (table II.1). This average masks the heterogeneity of fertility levels among countries and regions (figure II.1 and table S.9). In 2005-2010, 75 countries or areas (45 of them located in the more developed regions) have fertility levels below 2.1 children per woman, that is, below replacement level<sup>26</sup>, whereas 126 countries or areas, all of which, except for Iceland and New Zealand, are located in the less developed regions, and have total fertility levels at or above 2.1 children per woman. Among these 126 countries, 31 have total fertility levels at or above 5 children per woman, 28 of which are least developed countries (table II.2).

The 75 countries where total fertility is below replacement level in 2005-2010 account for 48.2 per cent of the world population or approximately 3.3 billion people. Countries with fertility at or above replacement level account for 3.5 billion people or 51.8 per cent of the world population.

Within the next decades, the number of countries with below-replacement fertility is expected to almost double to reach 139 in 2045-2050. This means that by mid-century 7.1 billion people or 75.2 per cent of the world population will be living in these countries. Under this medium fertility variant, it is assumed that 184 countries will reach below-replacement fertility by 2095-2100, and more than 81 per cent of the world population will be living in a country where the average number of children per woman will be below 2.1.

As in the 2010 revision of the *World Population Prospects*, the assumptions and the projection model used in this revision take into account the unique fertility decline experience of each country while also using the experience of all other countries to inform future potential fertility trajectories. Based on the historical experiences of fertility decline from all the countries and areas of the world since 1950, the projection results of the 2012 revision show that, by mid-century, 22 countries out of 75 currently are expected to still have on average 3 children or more per woman. By 2045-2050, 14.5 per cent of the world population is expected to live in such country compared to 18.4 per cent currently.

Since, 1974, when the first World Population Conference was held in Bucharest, Romania, fertility has declined by more than 20 per cent in 155 developing countries and by over 50 per cent in 40 of them. The fastest fertility reductions, among countries with fertility levels greater or equal to 4 children per woman in 1975-1980, occurred in countries in Asia, including the Islamic Republic of Iran, Viet Nam, United Arab Emirates, Maldives, Mongolia, Oman, Qatar, Bangladesh, Lebanon, Bhutan, Myanmar and Saudi Arabia. Fertility also declined rapidly in countries of Northern Africa, namely in Libya, Tunisia, Algeria, Morocco and Western Sahara as well as in Cape Verde and in Saint Lucia (table S.11). Among the countries that have experienced a decline of fertility by over 50 per cent within the past thirty years, current fertility levels are now on average 2.3 children per women instead of 5.6 in 1975-1980.

Although most developing countries are already far advanced in the transition from high to low fertility, twelve countries still have fertility levels of 6 children per woman or higher in 2005-2010 and in Niger and Somalia total fertility is greater than 7 children per woman (table II.2 and table S.10), and the fertility in these country has decreased at most by about 1.3 child within the last 30 years. Based on the experience of other countries with similar levels of fertility in the past, the fertility of those twelve countries is projected to decline after 2010, at a pace of less than one child per decade after 2020, and none, but one (Afghanistan), is expected to reach 2.1 children per woman by 2045-2050 in the medium variant. As a result, their average fertility is expected to be just below 3.5 children per woman and their

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<sup>26</sup> Replacement-level fertility is the level that needs to be sustained over the long run to ensure that a population replaces itself. For most countries having low or moderate mortality levels, replacement level is close to 2.1 children per woman.

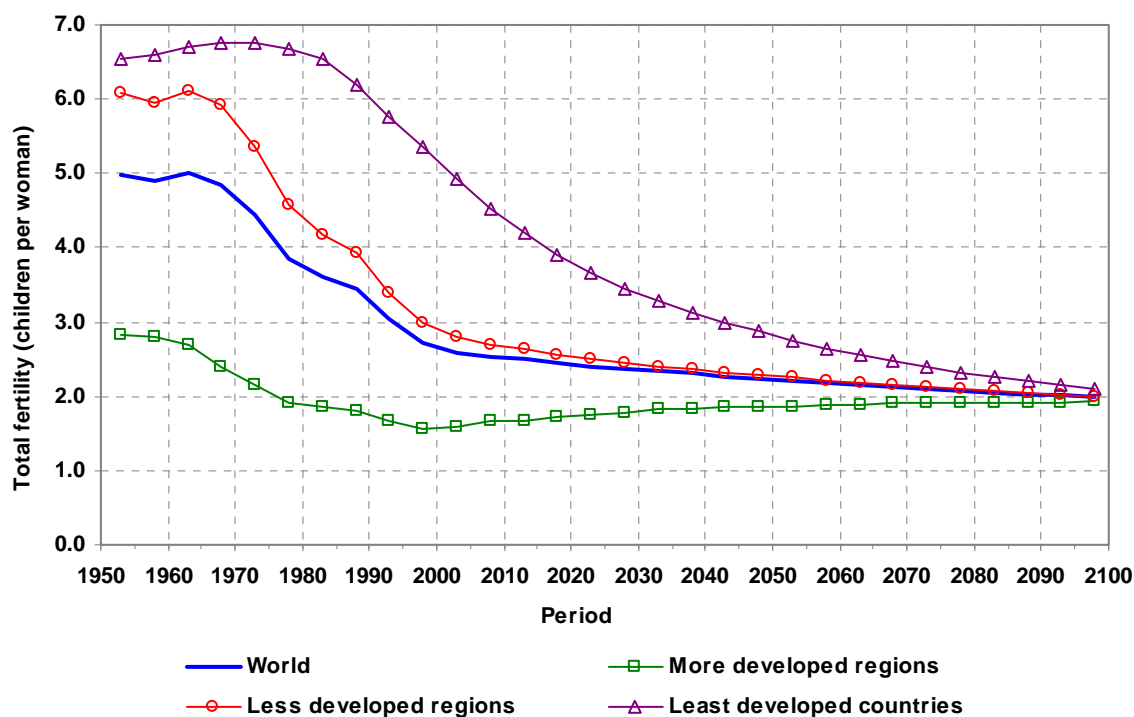
TABLE II.1. ESTIMATED AND PROJECTED TOTAL FERTILITY FOR THE WORLD, DEVELOPMENT GROUPS AND MAJOR AREAS, FOR SELECTED PERIODS AND DIFFERENT VARIANTS

	Total fertility (average number of children per woman)										
	1970-1975	1990-1995	2005-2010	2045-2050				2095-2100			
				Low	Medium	High	Constant-Fertility	Low	Medium	High	Constant-Fertility
World.....	4.44	3.04	2.53	1.78	2.24	2.71	3.28	1.51	1.99	2.47	4.61
More developed regions.....	2.15	1.67	1.66	1.36	1.85	2.35	1.74	1.43	1.93	2.43	1.84
Less developed regions.....	5.36	3.38	2.69	1.83	2.29	2.76	3.45	1.52	1.99	2.48	4.71
Least developed countries .....	6.75	5.77	4.53	2.40	2.87	3.34	5.17	1.63	2.11	2.60	5.76
Other less developed countries .....	5.18	3.08	2.40	1.62	2.09	2.57	2.85	1.45	1.93	2.42	3.73
Africa.....	6.66	5.71	4.88	2.61	3.09	3.58	5.30	1.64	2.12	2.61	5.71
Asia.....	4.99	2.96	2.25	1.39	1.89	2.38	2.58	1.35	1.85	2.35	3.16
Europe.....	2.17	1.57	1.54	1.31	1.80	2.30	1.56	1.39	1.89	2.40	1.63
Latin America and the Caribbean .....	5.02	3.02	2.30	1.34	1.83	2.33	2.44	1.35	1.85	2.34	2.70
Northern America.....	2.01	2.00	2.02	1.47	1.97	2.47	2.02	1.48	1.98	2.48	2.03
Oceania.....	3.23	2.49	2.47	1.60	2.09	2.59	2.70	1.41	1.91	2.40	3.22

Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2013). *World Population Prospects: The 2012 Revision*. New York: United Nations.

NOTE: Only countries or areas with 90,000 persons or more in 2013 are considered.

Figure II.1. Total fertility trajectories for the world and development groups, 1950-2100 (medium variant)



Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2013). *World Population Prospects: The 2012 Revision*. New York: United Nations.

TABLE II.2. DISTRIBUTION OF THE WORLD POPULATION AS WELL AS COUNTRIES AND AREAS ACCORDING TO THE LEVEL OF TOTAL FERTILITY IN SELECTED PERIODS (MEDIUM VARIANT)

Range of total fertility	World population (1 January)						
	1953	1973	1993	2008	2028	2048	2098
Greater or equal to 7 .....	108	182	188	24	—	—	—
Between 6 and less than 7 .....	1 060	525	288	336	32	—	—
Between 5 and less than 6 .....	589	995	248	268	300	65	—
Between 4 and less than 5 .....	36	1 086	300	225	447	85	—
Between 3 and less than 4 .....	285	92	1 480	390	590	1221	—
Between 2.1 and less than 3 .....	583	411	555	2 258	2 289	975	2 057
Between 1.85 and less than 2.1 .....	4	542	1 633	979	1 423	3531	4 748
Between 1.60 and less than 1.85 .....	—	85	335	1 427	2 728	3542	4 020
Between 1.40 and less than 1.60 .....	—	—	353	346	442	30	6
Between 1.20 and less than 1.40 .....	—	—	197	492	39	7	—
Less than 1.2 .....	—	—	—	7	—	—	—
Total population (millions) .....	2 665	3 919	5 578	6 753	8 290	9 456	10 831

	Percentage of the world population (1 January)						
	1953	1973	1993	2008	2028	2048	2098
Greater or equal to 7 .....	4.1	4.7	3.4	0.4	0.0	0.0	0.0
Between 6 and less than 7 .....	39.8	13.4	5.2	5.0	0.4	0.0	0.0
Between 5 and less than 6 .....	22.1	25.4	4.4	4.0	3.6	0.7	0.0
Between 4 and less than 5 .....	1.4	27.7	5.4	3.3	5.4	0.9	0.0
Between 3 and less than 4 .....	10.7	2.3	26.5	5.8	7.1	12.9	0.0
Between 2.1 and less than 3 .....	21.9	10.5	9.9	33.4	27.6	10.3	19.0
Between 1.85 and less than 2.1 .....	0.1	13.8	29.3	14.5	17.2	37.3	43.8
Between 1.60 and less than 1.85 .....	0.0	2.2	6.0	21.1	32.9	37.5	37.1
Between 1.40 and less than 1.60 .....	0.0	0.0	6.3	5.1	5.3	0.3	0.1
Between 1.20 and less than 1.40 .....	0.0	0.0	3.5	7.3	0.5	0.1	0.0
Less than 1.2 .....	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Total of the world population .....	100.0	100.0	100.0	100.0	100.0	100.0	100.0

	Number of countries						
	1950-1955	1970-1975	1990-1995	2005-2010	2025-2030	2045-2050	2095-2100
Greater or equal to 7 .....	29	32	11	2	—	—	—
Between 6 and less than 7 .....	72	50	23	10	1	—	—
Between 5 and less than 6 .....	37	31	24	19	3	1	—
Between 4 and less than 5 .....	17	22	25	19	15	2	—
Between 3 and less than 4 .....	17	15	28	21	29	19	—
Between 2.1 and less than 3 .....	25	31	35	55	40	40	17
Between 1.85 and less than 2.1 .....	4	16	17	23	41	51	98
Between 1.60 and less than 1.85 .....	—	4	20	15	49	85	85
Between 1.40 and less than 1.60 .....	—	—	12	20	19	2	1
Between 1.20 and less than 1.40 .....	—	—	6	15	4	1	—
Less than 1.2 .....	—	—	—	2	—	—	—
Total number of countries .....	201	201	201	201	201	201	201

Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2013). *World Population Prospects: The 2012 Revision*. New York: United Nations.

NOTE: Only countries or areas with 90,000 persons or more in 2013 are considered.

population is expected nearly to triple, passing from about 330 million in 2008 to close to 950 million in 2048, and could reach over 2 billion in 2098.

These twelve countries are least developed countries—Afghanistan, Angola, Burkina Faso, Burundi, Chad, the Democratic Republic of the Congo, Mali, Niger, Nigeria, Somalia, Timor-Leste, Uganda—and several are highly affected by the HIV/AIDS epidemic. Moreover, a number of them have been experiencing civil strife and political instability in recent years, factors that militate against the provision of basic services for the population. The continuation of rapid population growth poses serious challenges to their future development.

Despite the important contribution to population growth of countries with the highest fertility (those with a total fertility above 6 children per woman), these twelve countries account today for about 5.1 per cent of the world population and are expected to constitute respectively 10.2 and 19.3 per cent of the world population by 2048 and 2098, according to the medium variant. Countries with total fertility ranging from 4 to 6 children per woman account today for 7.0 per cent of the world population, and will account for about 12.1 per cent by 2048 (table II.2) because their fertility is expected to continue to decline from just 4.95 children per woman on average currently to 2.85 children per woman on average by 2045-2050, and to reach 2.1 children per woman by 2090-2095.

In 2008, the majority of people in the developing world live in the 74 countries with total fertility ranging from 2.1 to 4 children per woman, which account for 43.7 per cent of the world population. Most of those countries are projected to have a total fertility below replacement level by 2040-2045 or even earlier, according to the medium variant. Overall, 139 countries or areas are projected to have below-replacement fertility in 2045-2050, with 88 having a total fertility lower than 1.85 children per woman. As a result, according to the medium variant, 75.2 per cent of the world population is expected to live in countries with below-replacement fertility in 2045-2050. This percentage is expected to increase up to 81 per cent by the end of the century, but by then 98 countries are assumed to have reached a sub-replacement fertility level between 1.85 and 2.1 children per woman on average.

Fertility levels in developed countries, many of which experienced a “baby-boom” during the 1950s and 1960s, have generally declined since the early 1970s to below-replacement level. In fact, in 1975-1980, more than half of the 45 developed countries in the world already had below-replacement fertility. By 2005-2010, almost all developed countries had reached fertility levels below 2.1 children per woman (only Iceland and New Zealand have fertility levels equal or just above 2.1). Among them, 12 had reached historically unprecedented low fertility levels (below 1.4 children per woman), with Austria, Bosnia and Herzegovina, Germany, Hungary, Italy, Japan, Malta, Poland, Portugal, Romania, Slovakia and Ukraine exhibiting the lowest levels in the developed world. But the top five countries or areas experiencing in 2005-2010 the lowest fertility levels (below 1.3 children per woman) were Macao and Hong Kong (SARs of China), Bosnia and Herzegovina, the Republic of Korea and Singapore (table S.10).

At the world level, the medium variant projects total fertility to be 2.24 children per woman in 2045-2050 (table II.1), with a convergence between countries which leads to 1.85 children per woman in the more developed regions and 2.29 children per woman in the less developed regions. That is, although the difference in total fertility between the more and the less developed regions narrows considerably by mid-century, the less developed regions are still expected to have a higher total fertility than the more developed regions, and some regions like Africa to have on average a fertility more than one child higher than in Asia or Latin America. That difference persists in all projection variants. Total fertility in the low variant is expected to be 1.36 children per woman in the more developed regions and 1.83 children per woman in the less developed regions. In the high variant, total fertility is projected to be 2.35 children per woman in the more developed regions and 2.76 children per woman in the less developed regions.

### III. MORTALITY

#### A. TRENDS AND PROSPECTS IN WORLD MORTALITY

The twentieth century witnessed the most rapid decline in mortality in human history. In 1950-1955, life expectancy at the world level was 47 years and it had reached 69 years by 2005-2010. Over the next 40 years, life expectancy at birth at the global level is expected to reach 76 years in 2045-2050 and 82 years in 2095-2100 (table III.1 and figure III.1). The more developed regions already had a high expectation of life in 1950-1955 (64.7 years) and have since experienced further gains in longevity. By 2005-2010 their life expectancy stood at 76.9 years, 10 years higher than in the less developed regions where the expectation of life at birth was 67.0 years. Although the gap between the two groups is expected to narrow between 2005 and mid-century, in 2045-2050 the more developed regions are still expected to have considerably higher life expectancy at birth than the less developed regions (82.8 years versus 74.8 years). Throughout 2010-2100, systematic progress against mortality is further expected to increase life expectancy at birth up to 88.9 years in the more developed regions and 80.8 years in the less developed regions thereby further reducing the gap in mortality between the two groups.

TABLE III.1. LIFE EXPECTANCY AT BIRTH FOR THE WORLD, DEVELOPMENT GROUPS AND MAJOR AREAS, 2005-2010, 2045-2050 AND 2095-2100

<i>Major area</i>	<i>2005-2010</i>	<i>2045-2050</i>	<i>2095-2100</i>
World.....	68.7	75.9	81.8
More developed regions.....	76.9	82.8	88.9
Less developed regions.....	67.0	74.8	80.8
Least developed countries .....	58.4	70.4	77.6
Other less developed countries .....	68.8	76.0	82.2
Africa.....	55.6	68.9	77.1
Asia.....	70.3	76.9	83.0
Europe .....	75.3	81.3	87.9
Latin America and the Caribbean .....	73.4	81.8	87.9
Northern America.....	78.4	83.7	89.0
Oceania.....	76.8	81.7	86.6

*Source:* Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2013). *World Population Prospects: The 2012 Revision*. New York: United Nations.

The 49 least developed countries, which include 20 of the countries that are highly affected by HIV/AIDS, have been experiencing higher mortality than other development groups. Their life expectancy at birth was 58.4 years in 2005-2010 and is expected to remain relatively low, reaching 70.4 years in 2045-2050. During 2050-2100, provided a continued decline in mortality rates from HIV/AIDS as well as from other major causes of death, it is conceivable that life expectancy at birth will further climb to reach 77.6 years in 2095-2100. This gain is the most important factor in reducing gap in life expectancy between the more developed and the less developed groups of countries.

The general upward trend in life expectancy for the more developed and the less developed regions conceals different trends among the world's major areas (table III.1 and figure III.2). In Asia, Latin America and the Caribbean, Northern America and Oceania, life expectancy has been increasing at a steady pace. In contrast, Europe as a whole experienced a slowdown in the increase of life expectancy starting in the late 1960s and stagnating levels since the late 1980s. This trend is the result of severe reductions in life expectancy in countries of Eastern Europe, particularly in the Russian Federation and the Ukraine. The remaining regions of Europe have had increasing life expectancies which are currently equal to or higher than that of Northern America.

Figure III.1. Life expectancy at birth for the world and development groups, 1950-2100

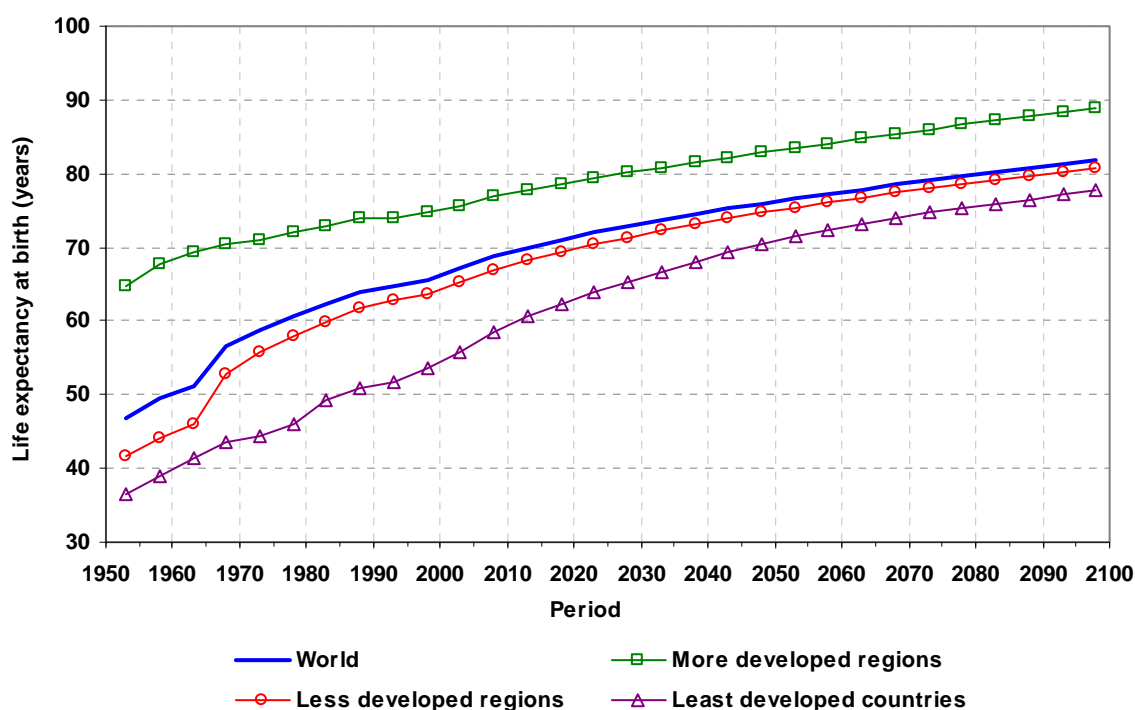
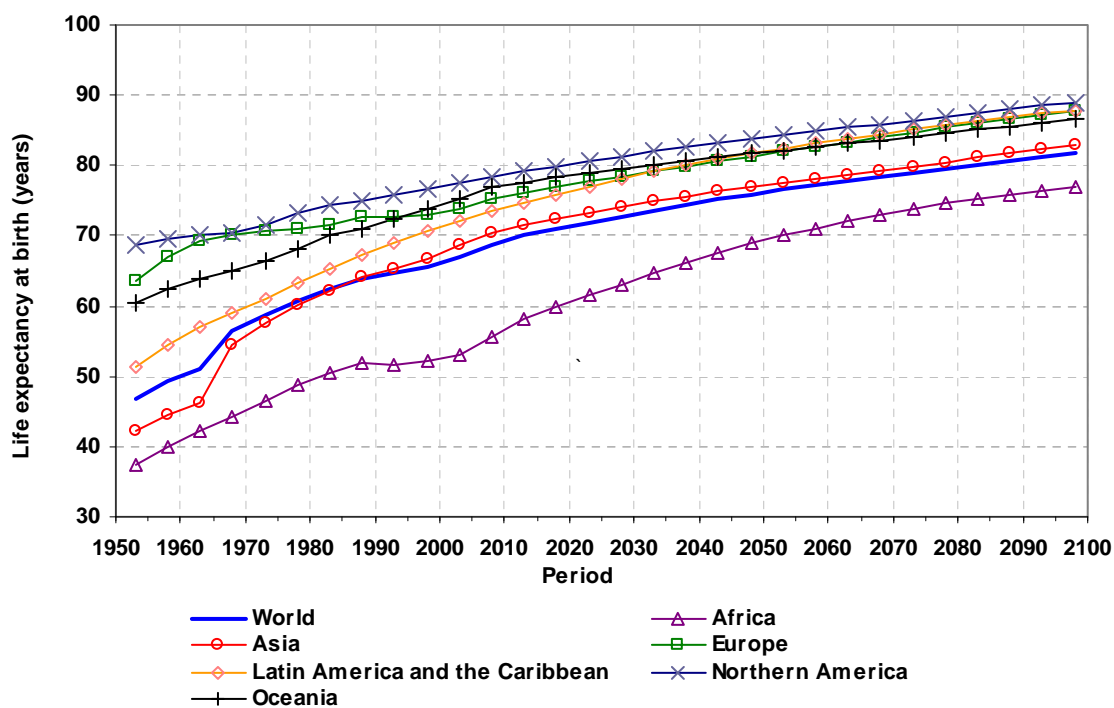


Figure III.2. Life expectancy at birth for the world and major areas, 1950-2100



Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2013). *World Population Prospects: The 2012 Revision*. New York: United Nations.



Africa has the lowest life expectancy levels of any major area. Furthermore, life expectancy in Africa has virtually stagnated since the late 1980s. While this trend is due in large part to the HIV/AIDS epidemic, other factors have also played a role, including armed conflict, economic stagnation, and resurgent infectious diseases such as tuberculosis and malaria. The recent negative developments in many countries of Africa represent major set backs in reducing mortality. Only in 2005-2010 is life expectancy expected to begin rising again and, provided efforts to reduce the expansion of the HIV/AIDS epidemic and to treat those affected by it succeed, it is expected to continue rising to reach 68.9 years in 2045-2050 and 77.1 in 2095-2100.

However, even if these gains materialize, by mid-century the population of Africa is still expected to be subject to the highest mortality levels in the world, with its overall life expectancy being 6 years lower than the next lowest one, that of Asia.

In nearly all countries of the world, female life expectancy at birth is higher than that of males. At the world level, females have a life expectancy of 71.0 years in 2005-2010, compared to 66.5 years for males (table III.2). The female advantage is considerably larger in the more developed regions (7 years) than in the less developed regions (3.6 years). The gap between male and female life expectancy is particularly narrow in the least developed countries (2.2 years). At the world level, a difference of 4.5 years between female and male life expectancy is expected to persist until 2045-2050, but whereas the female to male gap in life expectancy is expected to narrow in the more developed regions, it is expected to widen in the less developed regions. By 2095-2100, the gap between male and female life expectancy is expected to narrow on the world level and in all regions except the least developed countries where it is expected to stabilize since 2045-2050 at about 4 years.

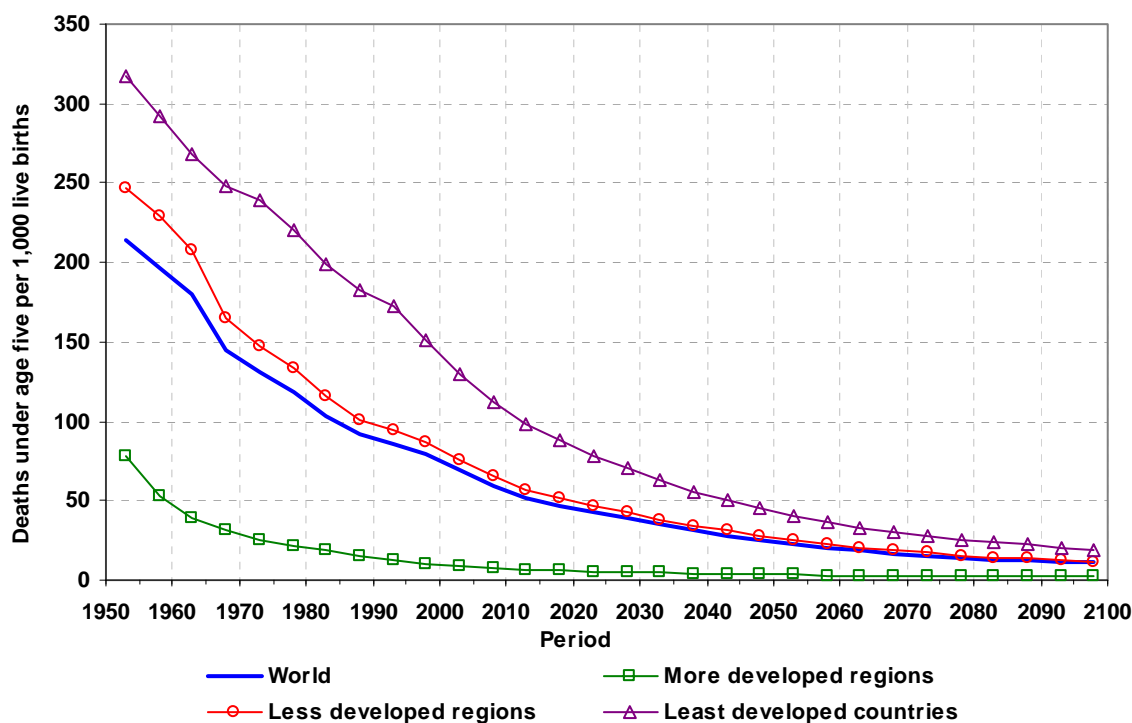
TABLE III.2. . LIFE EXPECTANCY BY SEX FOR THE WORLD AND DEVELOPMENT GROUPS, 2005-2010, 2045-2050 AND 2095-2100

Major area	Life expectancy at birth (years)					
	2005-2010		2045-2050		2095-2100	
	Male	Female	Male	Female	Male	Female
World .....	66.5	71.0	73.7	78.2	79.9	83.7
More developed regions .....	73.4	80.4	79.9	85.7	86.5	91.4
Less developed regions .....	65.2	68.8	72.7	76.8	79.1	82.7
Least developed countries .....	57.3	59.5	68.5	72.3	75.6	79.7

Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2013). *World Population Prospects: The 2012 Revision*. New York: United Nations.

Under-five mortality, expressed as the probability of dying between birth and the exact age of five, is an important indicator of development and the well-being of children. In 1950-1955, 21 per cent (215 deaths per 1,000 births) of all children born worldwide did not reach their fifth birthday (figure III.3). By 2005-2010, this rate had fallen to 59 deaths per 1,000 births. It is expected to continue declining to 26 deaths per 1,000 births by the middle of the century and 11 deaths per 1,000 births by the end of the century. In more developed countries, children mortality rate dropped from 78 deaths per 1,000 births in 1950-55 to 8 deaths per 1,000 births in 2005-2010. It is expected to reach to 4 deaths per 1,000 births in 2045-2050 and 2 deaths per 1,000 by 2095-2100. However, this rate in least developed regions still remains at a relatively high level today, around 112 deaths per 1,000 births in 2005-2010, falling from 318 deaths per 1,000 births in 1950-55; it is expected to decrease to 45 deaths per 1,000 births in 2045-2050 and to 19 deaths per 1,000 births in 2095-2100. Children mortality rate in less developed regions as a whole were more or less close to that of the world: 247 deaths per 1,000 births in 1950-1955, 65 deaths per 1,000 births in 2005-2010, 35 deaths per 1,000 births in 2045-2050 and 12 deaths per 1,000 births in 2095-2100.

Figure III.3. Under-five mortality for the world and development groups, 1950-2100



Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2013). *World Population Prospects: The 2012 Revision*. New York: United Nations.

## B. THE DEMOGRAPHIC IMPACT OF HIV/AIDS

More than thirty years into the HIV/AIDS epidemic, its effects on the populations of the highly-affected countries is still evident. In the *2012 Revision*, the demographic impact of HIV/AIDS is explicitly modelled or estimated in 39 countries, down from 48 in the *2010 Revision*. In most of these countries, HIV prevalence reached 2 per cent or higher in the period from 1980 to 2011 among the population aged 15-49 years. Among the 39 highly affected countries, 32 are in Africa, one in Asia, and six in Latin America and the Caribbean.

In the *2012 Revision*, the estimated and projected long-term impact of HIV/AIDS is similar in most countries to that projected in the *2010 Revision*. In other words, we still assume that antiretroviral therapy will reach an ever increasing proportion of the persons who need it; and as a result, those persons will not only survive longer but will be less infectious. However, realization of these projections is contingent on sustained commitment by Governments to assure treatment for those infected and to promote preventive measures and behavioural changes among the uninfected.

The *2012 Revision* confirms yet again the devastating toll AIDS has in terms of increased morbidity, mortality and population loss. Life expectancy in the most affected countries already shows dramatic declines. In Botswana, where HIV prevalence is estimated at 23.4 per cent in 2011 among the population aged 15-49 years, life expectancy has fallen from 64 years in 1985-1990 to 47 years in 2005-2010. By 2015-2020, life expectancy is expected to increase again to 51 years as a result of declining HIV prevalence and increased access to antiretroviral therapy. In Southern Africa as a whole, where most of the worst affected countries are, life expectancy has fallen from 61 to 52 years over the last 20 years.

While the impact in Southern Africa is particularly stark, the majority of highly affected countries in Africa have experienced declines in life expectancy in the past twenty years because of the epidemic.

The toll that HIV/AIDS is taking is already retarding progress in reducing child mortality. The impact of HIV on child mortality is particularly dramatic in countries that had achieved relatively low levels of child mortality before the epidemic began. In Zimbabwe, for instance, where under-five mortality was one of the lowest in sub-Saharan Africa, it has risen from 87 child deaths per 1,000 births in 1985-1990 to 99 per 1,000 in 2000-2005 and is projected to decline to 53 per 1,000 in 2010-2015. In Swaziland, under-five mortality has risen from 108 to 127 deaths per 1,000 births between 1985-1990 and 2000-2005, and is expected to decline to 92 deaths per 1,000 in 2010-2015. The impact of HIV/AIDS on child mortality is projected to decrease in the future with improved prevention of mother-to-child transmission and expanding coverage for HIV/AIDS treatment.

Despite the effect of the epidemic on reducing population growth rates, the populations of affected countries are generally expected to be larger by mid-century than today, mainly because most of them maintain high to moderate fertility levels. In fact, owing to the downward revision of the prevalence of HIV/AIDS combined with the expected expansion of access to antiretroviral therapy and efforts to control the further spread of HIV, all the countries with the highest prevalence in 2011 are expected to experience positive population growth rates between 2005 and 2050.



## IV. INTERNATIONAL MIGRATION

International migration is the component of population change most difficult to measure and estimate reliably. Thus, the quality and quantity of the data used in the estimation and projection of net migration varies considerably by country. Furthermore, the movement of people across international boundaries, which is very often a response to changing socio-economic, political and environmental forces, is subject to a great deal of volatility. Refugee movements, for instance, may involve large numbers of people moving across boundaries in a short time. For these reasons, projections of future international migration levels are the least robust part of current population projections and reflect mainly a continuation of recent levels and trends in net migration. For those reasons, it was decided to provide an overview of the projections of migration until 2050.

Estimates of net migration between the development groups show that since 1960 the more developed regions have been net gainers of emigrants from the less developed regions (table IV.1). Furthermore, net migration to the more developed regions has been increasing steadily from 1960 to 2010. During 2000-2010, the level of net migration to the more developed regions as a whole reached a peak of 3.46 million migrants annually. Within that period, Europe was the major area that had the highest level of net migration (1.88 million annually). Over the projection period, net migration to the more developed regions is projected to decline smoothly to about 2.3 million per year during 2040-2050, while the number of net migrants in Northern America is projected to remain almost constant at 1.2 million. With respect to the other major areas, Asia was by far the major source of migrants during 2000-2010 (1.78 million annually), followed by Latin America and the Caribbean (1.16 million annually) and then Africa (0.39 million annually). Over the projection period, Asia alone accounts for over half of all the net number of emigrants from the less developed regions to the more developed regions.

At the country level, during 2000-2010, 32 of the 45 developed countries have been net receivers of international migrants. This group includes traditional countries of immigration such as Australia, Canada, New Zealand and the United States, most of the populous countries in Northern, Southern and Western Europe as well as the Russian Federation and Japan. The movement of people from less developed regions to more developed regions has dominated the world migration patterns for almost half a century, but flows among developing countries have also been important. Several developing countries or areas have been attracting migrants in large numbers, including, Israel, Kuwait, Malaysia, Qatar, Saudi Arabia, Singapore, South Africa, Thailand and the United Arab Emirates. Jordan and the Syrian Arab Republic have been the primary receivers of refugees from Iraq. Many African countries have been the destination of refugee flows from neighbouring countries. During 2000-2010, the countries having the highest levels of net emigration included Bangladesh, China, India, Indonesia, Mexico and the Philippines. Pakistan also registered high levels of net emigration, partly as a result of the repatriation of Afghani refugees.

Though the results are not portrayed in table IV.1, the assumption for international migration after 2050 is that net migration will gradually decline and reach zero by 2100 in each country. We realize that this assumption is very unlikely to be realized but it is quite impossible to predict the levels of immigration or emigration within each country of the world for such a far horizon. Sending countries of today may become receiving countries and vice versa.

TABLE IV.1. AVERAGE ANNUAL NET NUMBER OF MIGRANTS PER DECADE BY DEVELOPMENT GROUP AND MAJOR AREA, 1950-2050 (MEDIUM VARIANT)

<i>Major area</i>	<i>Net number of migrants (thousands)</i>									
	<i>1950- 1960</i>	<i>1960- 1970</i>	<i>1970- 1980</i>	<i>1980- 1990</i>	<i>1990- 2000</i>	<i>2000- 2010</i>	<i>2010- 2020</i>	<i>2020- 2030</i>	<i>2030- 2040</i>	<i>2040- 2050</i>
More developed regions.....	29	601	1 307	1 475	2 548	3 455	2 564	2 349	2 331	2 320
Less developed regions .....	- 29	- 601	- 1 307	- 1 475	- 2 548	- 3 455	- 2 564	- 2 349	- 2 331	- 2 320
Least developed countries .....	- 105	- 169	- 917	- 1 038	- 73	- 1 210	- 919	- 802	- 799	- 794
Other less developed countries .....	76	- 433	- 390	- 437	- 2 475	- 2 246	- 1 645	- 1 547	- 1 532	- 1 526
Africa .....	- 101	- 185	- 487	- 501	- 443	- 388	- 484	- 497	- 499	- 498
Asia .....	116	12	- 319	- 294	- 1 334	- 1 780	- 1 397	- 1 256	- 1 245	- 1 233
Europe .....	- 427	41	414	525	960	1 866	1 119	935	916	905
Latin America and the Caribbean .....	- 80	- 318	- 439	- 708	- 707	- 1 155	- 609	- 533	- 525	- 526
Northern America .....	403	324	792	880	1 438	1 282	1 220	1 200	1 200	1 200
Oceania .....	89	126	39	98	87	175	151	152	153	153

*Source:* Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2013). *World Population Prospects: The 2012 Revision*. New York: United Nations.

## V. ASSUMPTIONS UNDERLYING THE 2012 REVISION

The preparation of each new revision of the official population estimates and projections of the United Nations involves two distinct processes: (a) the incorporation of all new and relevant information regarding the past demographic 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. The data sources used and the methods applied in revising past estimates of demographic indicators (i.e., those referring to 1950-2010) are presented online<sup>27</sup> and in an Excel file (WPP2012\_F02\_METAINFO.XLS).

The future population of each country is projected starting with an estimated population for 1 July 2010. Because population data are not necessarily available for that date, the 2010 estimate is derived from the most recent population data available for each country, obtained usually from a population census or a population register, projected to 2010 using all available data on fertility, mortality and international migration trends between the reference date of the population data available and 1 July 2010. In cases where data on the components of population change relative to the past 5 or 10 years are not available, estimated demographic trends are projections based on the most recent available data. Population data from all sources are evaluated for completeness, accuracy and consistency, and adjusted as necessary.

To project the population until 2100, the United Nations Population Division uses assumptions regarding future trends in fertility, mortality and international migration. Because future trends cannot be known with certainty, a number of projection variants are produced. The following paragraphs summarize the main assumptions underlying the derivation of demographic indicators for the period starting in 2010 and ending in 2100.

### A. FERTILITY ASSUMPTIONS: CONVERGENCE TOWARD LOW FERTILITY

The fertility assumptions are described in terms of the following groups of countries:

- *High-fertility countries*: Countries that until 2010 had no fertility reduction or only an incipient decline;
- *Medium-fertility countries*: Countries where fertility has been declining but whose estimated level is above the replacement level of 2.1 children per woman in 2005-2010;
- *Low-fertility countries*: Countries with total fertility at or below the replacement level of 2.1 children per woman in 2005-2010.

#### *1. Medium-fertility assumption*

The *2012 Revision* of the *World Population Prospects* uses the same probabilistic method for projecting total fertility as the *2010 Revision* with two notable enhancements. First, the new revision incorporates the latest information from the 2010 round of censuses as well as newly-available surveys. Second, once countries reach below-replacement fertility the long-term fertility assumption is more data-driven and country-specific compared to previous assumptions. The method for long-term fertility projections was developed in collaboration with the Probabilistic Projections Group of the Center for Statistics and the Social Sciences (CSSS) of the University of Washington, and the Department of Statistics and Applied Probability and Saw Swee Hock School of Public Health of the National University

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<sup>27</sup> Data sources and related meta-information for the *2012 Revision* of the *World Population Prospects* are available for each country from the following web page: <http://esa.un.org/unpd/wpp/Documentation/data-sources.htm>.

of Singapore.<sup>28</sup> The method is based on empirical fertility trends estimated for the *2012 Revision* for all countries<sup>29</sup> of the world for the period 1950 to 2010 (or up to 2010-2015 for 37 countries with empirical data up to 2011 or 2012).

There has been a general consensus that the evolution of fertility includes three broad phases (see figure V.1): (i) a high-fertility pre-transition phase, (ii) the fertility transition itself and (iii) a low-fertility post-transition phase during which fertility will probably fluctuate around or below 2.1 children per woman. These historic trends of fertility decline are re-estimated every second year by the United Nations Population Division, using the most recent empirical evidence from censuses, surveys, registers and other sources and after extensive re-evaluation of past historical trends in the light of all the information available and internal consistency checks with intercensal cohorts.

In past revisions of the *World Population Prospects* it was assumed that countries in the transition from high to low fertility will ultimately approach a fertility floor of 1.85 children per woman, regardless of their current position in the fertility transition. The transition from the current level of fertility to the fertility floor was expressed by three models of fertility change over time. These fertility projection models have been formalized since the *2004 Revision* using a double-logistic function, defined by six deterministic parameters.<sup>30</sup> For countries that were below replacement level, a much simpler model of fertility change was used. In general, it was assumed that fertility would recover from very low levels of fertility, following a uniform pace that would also converge to the fertility floor of 1.85 children per woman, just as in the high and medium fertility countries.

The new probabilistic method used in the *2010 and 2012 Revisions* for projecting total fertility consists of two separate processes:

The first process models the sequence of change from high to low fertility (phase II of the fertility transition). For countries that are going through this fertility transition, the pace of the fertility decline is decomposed into a systematic decline and random distortion terms. The pace of the systematic decline in total fertility is modelled as a function of its level, based on the current UN methodology using a double-logistic decline function. The parameters of the double-logistic function are estimated using a Bayesian Hierarchical Model (BHM), which results in country-specific *distributions* for the parameters of the decline. These distributions are informed by historical trends within the country, as well as the variability in historical fertility trends of all countries that have already experienced a fertility decline. This approach not only allows one to take better into account the historical experience of each country, but also to reflect the uncertainty about future fertility decline based upon the past experience of all other countries at similar levels of fertility. Under these conditions, the pace of decline and the limit to which fertility will decline vary for each projected trajectory. The model is hierarchical because in addition to the information available at the country level, a second-level (namely, the world's experience through the information of all countries) is also used to inform the statistical distributions of the parameters of the double-logistic. This is particularly important for countries at the beginning of their fertility transition because limited information exists as to their speed of decline and future trajectories, so the future potential trajectories (and speed of decline) are mostly informed by the world's experience and the variability in trends experienced in other countries at similar fertility levels in the past. The Bayesian statistical approach itself is particularly adapted to estimate the parameters of the double-logistic model

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<sup>28</sup> Alkema L., A.E. Raftery, P. Gerland, S.J. Clark, F. Pelletier, T. Buettner, G.K. Heilig (2011). Probabilistic Projections of the Total Fertility Rate for All Countries. *Demography*, vol. 48, number 3, pp. 815-839, doi: 10.1007/s13524-011-0040-5 and *Working Paper of the Center for Statistics and the Social Sciences*, University of Washington, 2010, vol. 97. URL <http://www.csss.washington.edu/Papers/wp97.pdf>; Raftery, A.E., L. Alkema, and P. Gerland (2013). Bayesian Population Projections for the United Nations. *Statistical Science*. In press. [http://www.imstat.org/sts/future\\_papers.html](http://www.imstat.org/sts/future_papers.html).

<sup>29</sup> Only countries or areas with 90,000 persons or more in 2013 are considered.

<sup>30</sup> United Nations, Department of Economic and Social Affairs, Population Division (2010). *World Population Prospects. The 2006 Revision*, Vol. III, ST/ESA/SER.A/263. Chapter VI. Methodology of the United Nations population estimates and projections, pp. 121-159. [http://www.un.org/esa/population/publications/WPP2006RevVol\\_III/WPP2006RevVol\\_III\\_final.pdf](http://www.un.org/esa/population/publications/WPP2006RevVol_III/WPP2006RevVol_III_final.pdf).



even when the number of empirical observations for each country is very limited (i.e., about 100 countries that started their fertility transition since the 1960s have nine or fewer observations).

The second component of the projection model deals with countries once they have completed the demographic transition, and have reached Phase III of low fertility. For these countries, a time series model is used to project fertility which assumes that in the long run fertility will approach and fluctuate around country-specific ultimate fertility levels based on a Bayesian hierarchical model.<sup>31</sup> The time series model uses the empirical evidence from low-fertility countries that have experienced fertility increases from a sub-replacement level after a completed fertility transition. Future long-term fertility levels in the *2012 Revision* are now country-specific and informed by statistical distributions that incorporate the empirical experience of all low-fertility countries having already experienced a recovery, instead of the more normative assumption used in the *2010 Revision* that was assuming a global long-term replacement-level of 2.1 children per woman. This new approach not only enables better accounting of the historical experience of each country, but also reflects the variability in historical fertility trends of all low-fertility countries, as well as the uncertainty about the pace of any potential fertility recovery and long-term fertility levels. The world mean parameter for the country-specific asymptotes is restricted to be no greater than the replacement level of 2.1 children per woman (with no lower limit, except to be greater than zero<sup>32</sup>).

While the long-term assumption of a fertility increase is supported by the experience of many low-fertility countries in Europe and East Asia,<sup>33</sup> the new approach additionally draws upon the country-specific experiences. In this approach, the projections for countries that have experienced extended periods of low fertility with no empirical evidence of an increase in fertility, can result in continuing low fertility levels with no fertility increase in the near future, as the research on “low fertility trap hypothesis” has argued for some low-fertility countries in Europe<sup>34</sup> and East Asia.<sup>35</sup>

The two processes are schematically explained in figure V.1. During the observation period, the start of Phase II is determined by examining the maximum total fertility (or more precisely, the most recent local maximum within half a child of the global maximum to exclude random fluctuations in Phase I): the start of Phase II is deemed to be before 1950 for countries where this maximum is less than 5.5, and at the period of the local maximum for all other countries. The end of Phase II during the observation period is defined as the midpoint of the first two increases below 2 (if observed, else a country is still in Phase II).

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<sup>31</sup> Raftery, A.E., L. Alkema, and P. Gerland (2013). Bayesian Population Projections for the United Nations. *Statistical Science*. In press. [http://www.imstat.org/sts/future\\_papers.html](http://www.imstat.org/sts/future_papers.html).

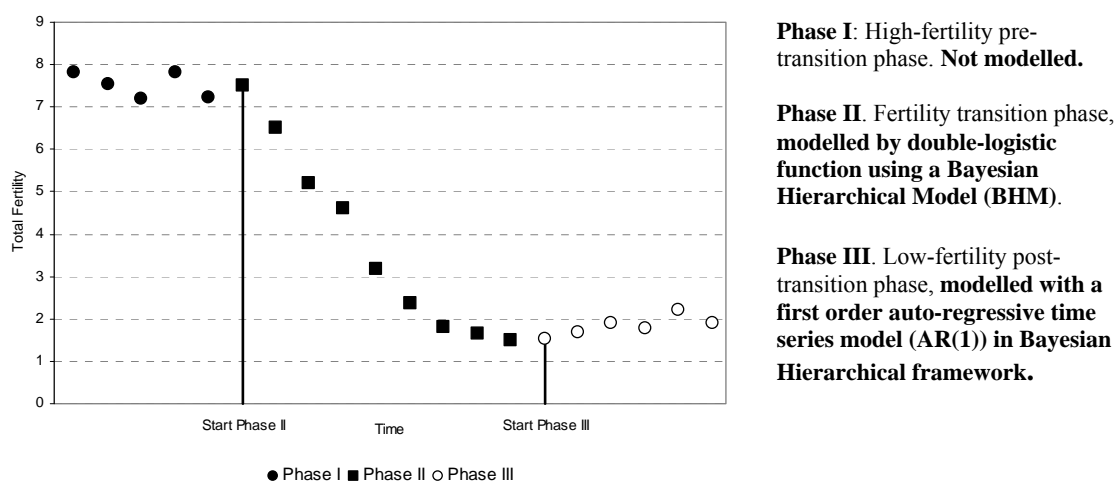
<sup>32</sup> While the asymptote does not have an explicit lower bound, it does implicitly because any given total fertility trajectory is restricted not be smaller than 0.5 child.

<sup>33</sup> Goldstein, J.R., T. Sobotka, and A. Jasilioniene (2009). The End of “Lowest-Low” Fertility? *Population and Development Review*, vol. 35, number 4, pp. 663-699. doi: 10.1111/j.1728-4457.2009.00304.x; Caltabiano, M., M. Castiglioni, and A. Rossina (2009). Lowest-low fertility: Signs of a recovery in Italy? *Demographic Research*, vol. 21, pp. 681-718. doi: 10.4054/DemRes.2009.21.23; Myrskylä, M., H.-P. Kohler, and F. C. Billari (2009). Advances in development reverse fertility declines. *Nature*, vol. 460, pp. 741-743. doi: 10.1038/nature08230; Sobotka, T. (2011). Fertility in Central and Eastern Europe after 1989: Collapse and Gradual Recovery. *Historical Social Research-Historische Sozialforschung*, vol. 36, number 2, pp. 246-296; Bongaarts, J. and T. Sobotka (2012). A Demographic Explanation for the Recent Rise in European Fertility. *Population and Development Review* 38(1):83-120. doi: 10.1111/j.1728-4457.2012.00473.x; Myrskylä, M., J.R. Goldstein, and Y.-h.A. Cheng (2013). New Cohort Fertility Forecasts for the Developed World: Rises, Falls, and Reversals. *Population and Development Review* 39(1):31-56. doi: 10.1111/j.1728-4457.2013.00572.x.

<sup>34</sup> Wolfgang Lutz, V. Skirbekk, and M.R. Testa (2006). The Low Fertility Trap Hypothesis: Forces that May Lead to Further Postponement and Fewer Births in Europe. *Vienna Yearbook of Population Research*, Volume 4 (Postponement of Childbearing in Europe):167-192; Lutz, W. (2007). “The Future of Human Reproduction: Will Birth Rates Recover or Continue to Fall?” *Ageing Horizons* (7):15-21.

<sup>35</sup> Jones, G.W., P.T. Straughan, and A.W.M. Chan (2009). *Ultra-low fertility in Pacific Asia: trends, causes and policy issues*. London; New York: Routledge; Frejka, T., G.W. Jones, and J.-P. Sardon (2010). East Asian Childbearing Patterns and Policy Developments. *Population and Development Review* 36(3):579-606. doi: 10.1111/j.1728-4457.2010.00347.x; Basten, S. (2013). *Re-Examining the Fertility Assumptions for Pacific Asia in the UN's 2010 World Population Prospects*. University of Oxford Department of Social Policy and Intervention, Barnett Papers in Social Research: 2013/1. Available at SSRN: [http://www.spi.ox.ac.uk/fileadmin/documents/pdf/Barnett\\_Paper\\_13-01.pdf](http://www.spi.ox.ac.uk/fileadmin/documents/pdf/Barnett_Paper_13-01.pdf).

**Figure V.1. Schematic phases of the fertility transition**



Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2013). *World Population Prospects: The 2012 Revision*. New York: United Nations.

To construct projections for all countries still in Phase II, the BHM model is used to generate 600,000<sup>36</sup> double-logistic curves for all countries that have experienced a fertility decline (see example in figure V.2), representing the uncertainty in the double-logistic decline function of those countries (graphs of this double-logistic curve are available online<sup>37</sup>). The sample of double-logistic curves is then used to calculate 60,000 total fertility projections for all countries which have not reached Phase III by 2005-2010. For each trajectory, at any given time, the double-logistic function gives the expected decrement in total fertility based on its current level. A distortion term is added to the expected decrement to calculate the projected change in total fertility. (This distortion term represents the deviations of fertility decrements from the double-logistic curve, as observed in past declines).

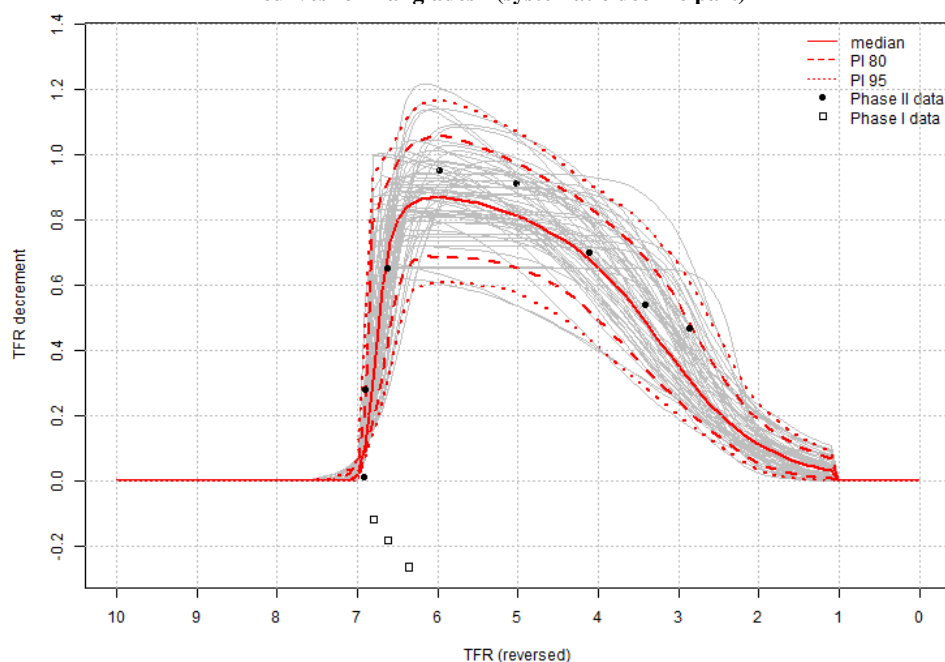
Once a trajectory has decreased to a level that is around or below replacement-level fertility, and after the pace of the fertility decline has decreased to zero, future changes of fertility are calculated using a time series model of fertility recovery that is informed by the countries that have experienced fertility increases.

An additional innovation starting in the *2010 Revision* of the *World Population Prospects* was the removal of the 1.85 floor which was used in previous revisions as the stabilization level after the fertility transition; the total fertility is now allowed to decrease *below* replacement level in the projections because of the uncertainty up to which level fertility will decline (end of Phase II) before it starts to recover toward the replacement level (start of Phase III). The pace of the fertility change, the level and timing when Phase II stops and Phase III starts varies for each of the 600,000 projected trajectories of change in fertility for a country that has not reached Phase III by 2005-2010. Future trajectories are a combination of total fertility in Phases II and III until all trajectories are in Phase III. For countries that are already in Phase III, the time series model for that phase is used directly.

<sup>36</sup> Actually ten simulations are run in parallel with 62,000 iterations performed for each simulation, and the first 2,000 are discarded.

<sup>37</sup> United Nations, Department of Economic and Social Affairs, Population Division (2013). *World Population Prospects: The 2012 Revision*. New York. Online plots of total fertility decline curves (based on Double-Logistic function) from the Bayesian Hierarchical Model (BHM): median, 80% and 95% projection intervals: [http://esa.un.org/unpd/wpp/fertility\\_figures/interactive-figures\\_DL-functions.htm](http://esa.un.org/unpd/wpp/fertility_figures/interactive-figures_DL-functions.htm).

**Figure V.2. Total fertility decrements and projection intervals of double-logistic curves for Bangladesh (systematic decline part)**



NOTE: The observed five-year decrements by level of total fertility are shown by black dots. For clarity, only 60 trajectories from 600,000 are displayed. The median projection is the solid bold red line, and the 80% and 95% projection intervals are displayed as dashed and dotted red lines respectively.

For each country, the end result is 60,000 projected trajectories of total fertility (based on a systematic sampling of 1/10 of the 600,000 simulated trajectories of change in fertility). The median of these 60,000 trajectories is used as the medium fertility variant projection in the *World Population Prospects*. To evaluate future trends in fertility, 80% and 95% projection intervals are also calculated (see figure V.3 for Bangladesh, additional tables<sup>38</sup> and graphs<sup>39</sup> are available online for all countries). For countries which have not reached Phase III by 2005-2010, the projected median trajectory reflects the uncertainty as to when the fertility transition will end and at which level.

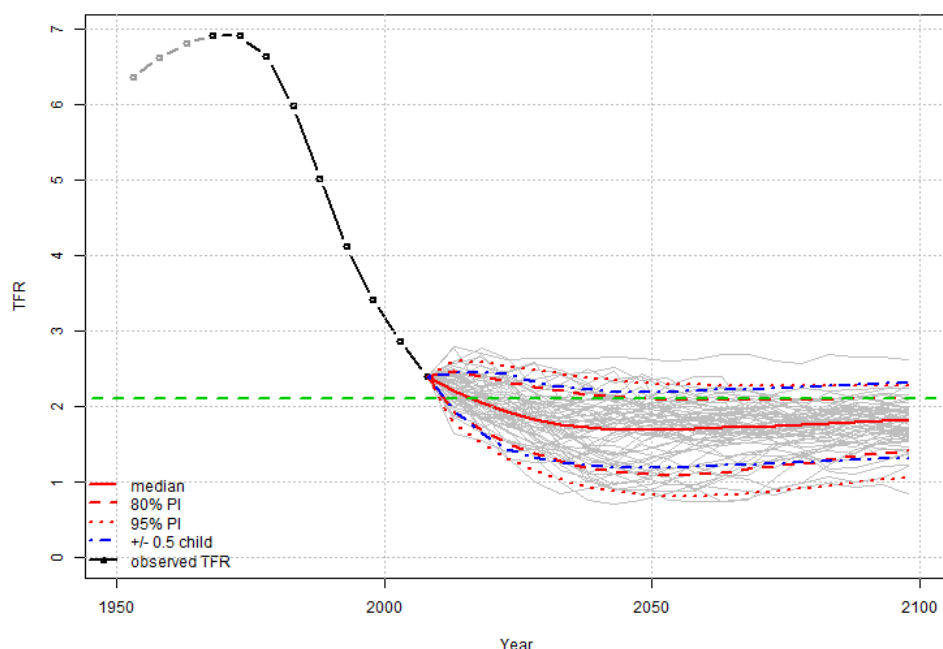
**a. Caveat about medium-high fertility countries experiencing slower declines than expected or even stalling**

The *2012 Revision* draws on new empirical evidence on fertility levels and trends that became available since the *2010 Revision*. The empirical evidence from available surveys and the 2010 round of censuses provides a basis for a reassessment of recent fertility levels and trends experienced within the last decade, including slower declines than expected or even stalling and, in a few instances, increases in fertility in a substantial number of countries in sub-Saharan Africa. This upward revision of recent fertility trends led to the decision not to apply the additional adjustment, which was used in the *2010 Revision*, for a small set of countries at the very early stage of their fertility transition (e.g., Mali, Niger, Nigeria, Somalia) or experiencing recent fertility stalling (e.g., Congo, Gabon, Kenya, Malawi, Mozambique, Rwanda, Sao Tome and Principe, United Republic of Tanzania, Zambia, Zimbabwe). For these countries, the recent fertility decline has been much slower than typically experienced in the past

<sup>38</sup> United Nations, Department of Economic and Social Affairs, Population Division (2013). *World Population Prospects: The 2012 Revision*. New York. Online tables of stochastic projections of total fertility: median, 80% and 95% projection intervals [http://esa.un.org/unpd/wpp/fertility\\_figures/data/WPP2012\\_FERT\\_PPP\\_Total\\_Fertility.xls](http://esa.un.org/unpd/wpp/fertility_figures/data/WPP2012_FERT_PPP_Total_Fertility.xls).

<sup>39</sup> United Nations, Department of Economic and Social Affairs, Population Division (2013). *World Population Prospects: The 2012 Revision*. New York. Online plots of projections of total fertility: median, 80% and 95% projection intervals, high and low WPP fertility variants: [http://esa.un.org/unpd/wpp/fertility\\_figures/interactive-figures\\_TF-trajectories.htm](http://esa.un.org/unpd/wpp/fertility_figures/interactive-figures_TF-trajectories.htm).

**Figure V.3. Probabilistic trajectories of projected total fertility (2010-2100) for Bangladesh**



NOTE: For clarity, only 60 trajectories from 60,000 are displayed. The median projection is the solid bold red line, and the 80% and 95% projection intervals are displayed as dashed and dotted red lines respectively. The high-low fertility variants in the 2012 Revision correspond to  $\pm 0.5$  child around the median trajectory displayed as blue dashed lines. The replacement-level of 2.1 children per woman is plotted as green horizontal dashed line only for reference.

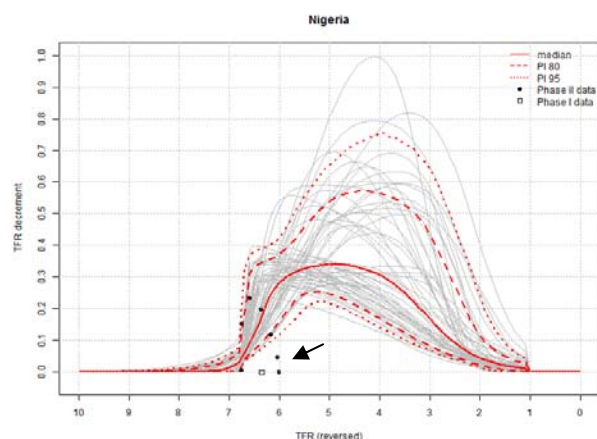
decades by other countries at similar levels of fertility, and the additional adjustment would delay any potential future decline, implying even further population growth than already anticipated with the standard assumption of a generalized fertility decline.

The fertility projections for sub-Saharan Africa follow the general path from high to low fertility experienced in other regions and are informed by fertility changes observed since 1950 in the countries of Asia, Latin America and the Caribbean and in the countries of Africa that are more advanced in their fertility transition. This assumption is rather optimistic in the face of the recent empirical evidence<sup>40</sup> and assumes in the long term that all sub-Saharan African countries will follow the general path from high to low fertility experienced in other regions, albeit at a slower pace and through a different combination of factors (in terms of different patterns of female education, union formation, length of birth intervals, ideal number of children, adoption of modern contraceptive methods and so on).

In Nigeria, empirical evidence shows that fertility decline has been stalling at 6 children per woman for the past decade: the decline between 2000-2005 and 2010-2015 was estimated to be much smaller than in previous periods ( $\leq 0.05$  child per woman by 5-year period) (figure V.4), especially compared to other countries at a similar level of fertility in the past. The fertility projections reflect the long-term trend informed both by the past changes in the particular country, as well as the experience of other countries under similar conditions (figure V.5). Furthermore, the uncertainties around the true fertility levels and trends are large, as seen in differences between the empirical evidence on fertility from various sources and methodology used for estimating total fertility (see figure V.6 for Nigeria).

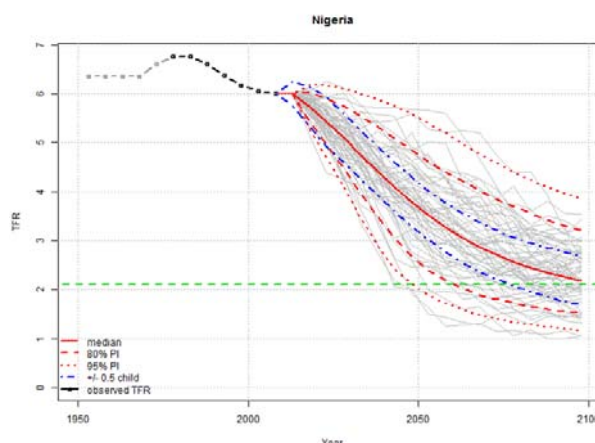
<sup>40</sup> Bongaarts, J. and J. Casterline (2013). Fertility Transition: Is sub-Saharan Africa Different? *Population and Development Review* 38:153-168. doi: 10.1111/j.1728-4457.2013.00557.x.

**Figure V.4. Total fertility decrements and projection intervals of double-logistic curves for Nigeria**



NOTE: The black dots represent the observed decrements, which are much smaller than the double-logistic-decrements in the last two observation periods (2005-2015) because of a stall in the fertility decline. For clarity, only 60 trajectories from 60,000 are displayed

**Figure V.5. Probabilistic trajectories of projected total fertility (2015-2100) for Nigeria**



NOTE: For clarity, only 60 trajectories from 60,000 are displayed. The median projection is the solid bold red line, and the 80% and 95% projection intervals are displayed as dashed and dotted red lines respectively. The high-low fertility variants in the 2012 Revision correspond to  $\pm 0.5$  child around the median trajectory displayed as blue dashed lines. The replacement-level of 2.1 children per woman is plotted as green horizontal dashed line only for reference.

In figure V.6, all empirical evidence used to derive total fertility estimates for the period 1970 to 2010 in Nigeria are shown in blue for the 2010 Revision. Multiple data sources were considered, and one or multiple estimation methods were used for some of them: (a) direct estimates based on maternity-history data adjusted for underreporting from the 1981-1982 Nigeria World Fertility Survey (WFS), 1990, 1999, 2003 and 2008 Demographic and Health Surveys (DHS), (b) recent births in the preceding 12 months (or 36 months) by age of mother, from these surveys and from the 1971-1973 National Fertility, Family Planning and Knowledge, Attitudes and Practices survey, 1991 census, 2000 Nigeria Sentinel Survey, 2007 Multiple Indicator Cluster Survey (MICS 3); (c) adjusted fertility using Brass P/F ratio<sup>41</sup> and data on children ever born from these sources; (d) cohort-completed fertility<sup>42</sup> from these surveys and censuses, and the 1995 MICS and 1999 MICS2 surveys.

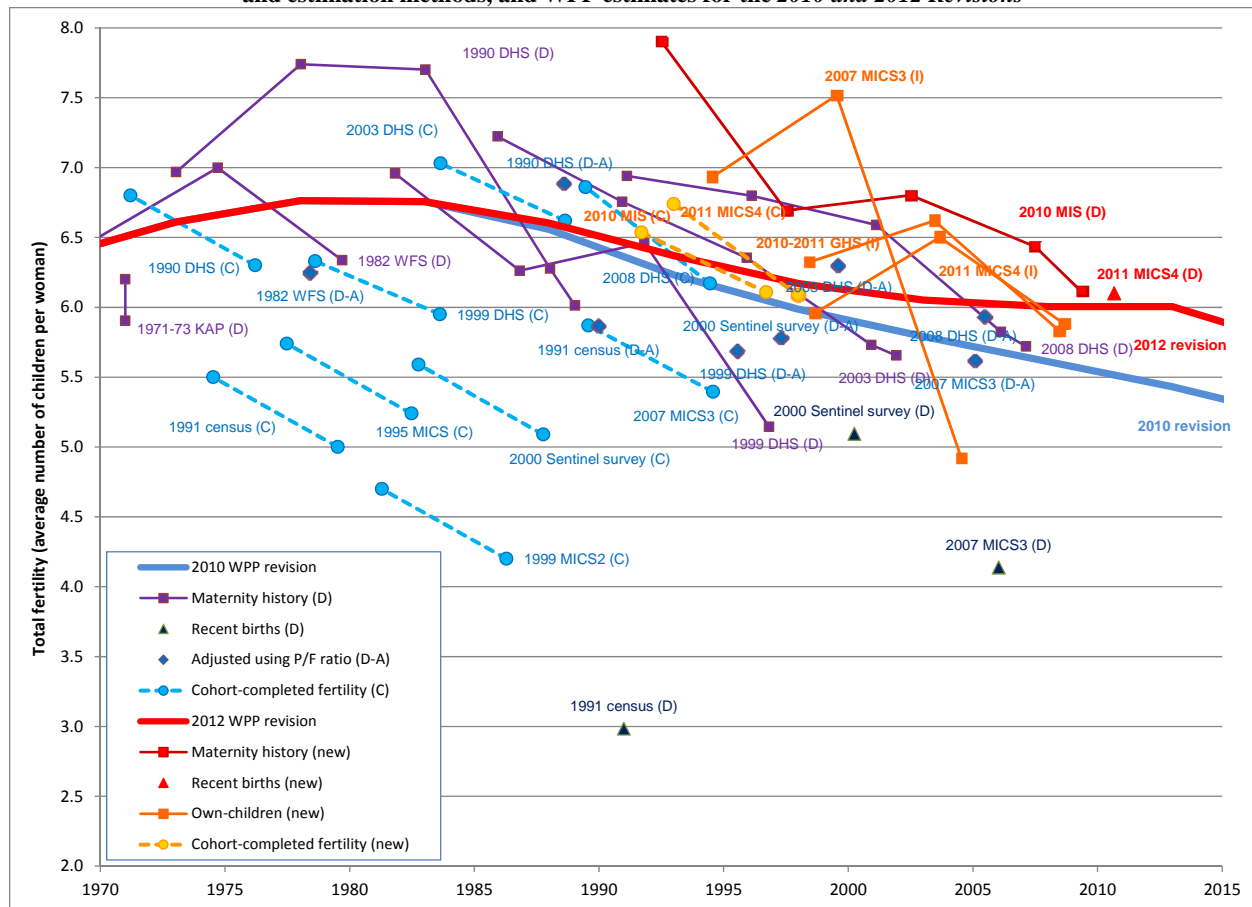
<sup>41</sup> United Nations, DIESA, Population Division and U.S. National Research Council, Committee on Population and Demography (1983). *Manual X: indirect techniques for demographic estimation*. Population Studies no.81. New York: United Nations. Available online at: [http://www.un.org/esa/population/publications/Manual\\_X/Manual\\_X.htm](http://www.un.org/esa/population/publications/Manual_X/Manual_X.htm).

<sup>42</sup> Using Ryder's (1964, 1983). Correspondence between period and cohort measures, the mean number of children ever born (CEB) to a cohort is used to approximate the period total fertility rate at the time this cohort was at its mean age at childbearing. See Feeney (1995, 1996) for further details about time translation of mean CEB for women age 40 and over.

Ryder, N. (1964). The Process of Demographic Translation, *Demography* 1(1):74-82. doi: 10.2307/2060032 and Ryder, N. (1983). Cohort and period measures of changing fertility. In R. A. Bulatao, R. D. Lee and National Research Council (U.S.). Committee on Population and Demography. Panel on Fertility Determinants. (Eds.), *Determinants of fertility in developing countries* (pp. 737-756). New York: Academic Press.

Feeney, G. (1995). "The Analysis of Children Ever Born Data for Post-Reproductive Age Women." Paper presented at the *Notestein Seminar*, Office of Population Research, Princeton University, 14 November 1995. Available online at <http://gfeeney.com/present/1995-ceb-for-praw/1995-ceb-for-praw.pdf> and Feeney, G. (1996). *A New Interpretation of Brass' P/F Ratio Method Applicable When Fertility is Declining*. [electronic resource]. Accessed 12 January 2004. Available online at <http://gfeeney.com/notes/pfnote/pfnote.pdf>.

**Figure V.6. Nigeria 1970-2015 total fertility rate estimates based on various data sources and estimation methods, and WPP estimates for the 2010 and 2012 Revisions**



Since the *2010 Revision*, results from several new surveys became available and were considered in addition to those already used earlier. In particular the 2010 Malaria Indicator Survey (MIS) provided maternity-history data covering the retrospective period 1990-2010, the 2011 Multiple Indicator Cluster Survey (MICS4) provided fertility on the 12-months preceding the survey, and microdata available for this survey as well as the previous 2007 Multiple Indicator Cluster Survey (MICS3) and 2010-2011 General Household Survey (GHS) allowed to compute indirect fertility estimates using the own-children method and the household composition at the time of the survey. These additional estimates are shown in red in figure V.6 together with the 2012 WPP estimates revised upward to take into account this new set of information indicating that fertility within the last decade has not been declining as much as suggested by retrospective surveys available up to 2010.

Unlike in the *2010 Revision*, for all countries like Nigeria no additional adjustment is made to compensate for the difference between the observed and expected decrement in the most recent period. In the *2012 Revision*, the recent stagnation is treated as a temporary phenomenon rather than a long term situation because of the uncertainty that prevails as to the true fertility levels and trends in these countries. Moreover, recent global and country-specific investments to accelerate access to modern contraceptive methods in 69 of the poorest countries in the world (41 of which are in sub-Saharan Africa and including almost all countries at the early stage of their fertility transition or with recent fertility stalls)<sup>43</sup> provide further reason to consider a slowdown in the pace of fertility decline as transitory.

<sup>43</sup> London Summit on Family Planning, Technical Note: Data sources and methodology for developing the 2012 baseline, 2020 objective, impacts and costings. London: Family Planning Summit Metrics Group, 2012. <http://www.londonfamilyplanningsummit.co.uk/>



The fertility projections, as with a separate effort to estimate and project contraceptive prevalence,<sup>44</sup> one of the key determinants of fertility, are informed both by historical trends and the assumption that the conditions facilitating fertility decline (or an increase in contraceptive prevalence) will persist. Should massive efforts to scale up family planning information, supplies and services to reach 120 million new modern contraceptive method users by 2020 be realized (see [www.familyplanning2020.org](http://www.familyplanning2020.org)), then the fertility projections may be too high. However, should prevailing conditions underlying fertility decline deteriorate (e.g., a slowdown in modern contraceptive method uptake or persistent levels of early marriage and desires for large family sizes), then the fertility projections may be too low.

### ***b. Long-term ultimate fertility level once countries reach low fertility***

Based on the estimates of the *2012 Revision*, there is empirical evidence that at least 25 countries or areas with total fertility below the 2.1 replacement level, between 1950 and 2010, have experienced slight increases in total fertility, after they had reached their lowest fertility level. Some of these countries have experienced slight increases in fertility for several years. The revised hierarchical AR1 model used for low fertility countries uses the information on the rates of change in total fertility from countries that have experienced at least two consecutive data points of (slight) increase in total fertility. Table V.1 provides a list of these countries, which includes the five-year interval when the lowest level of total fertility was reported:

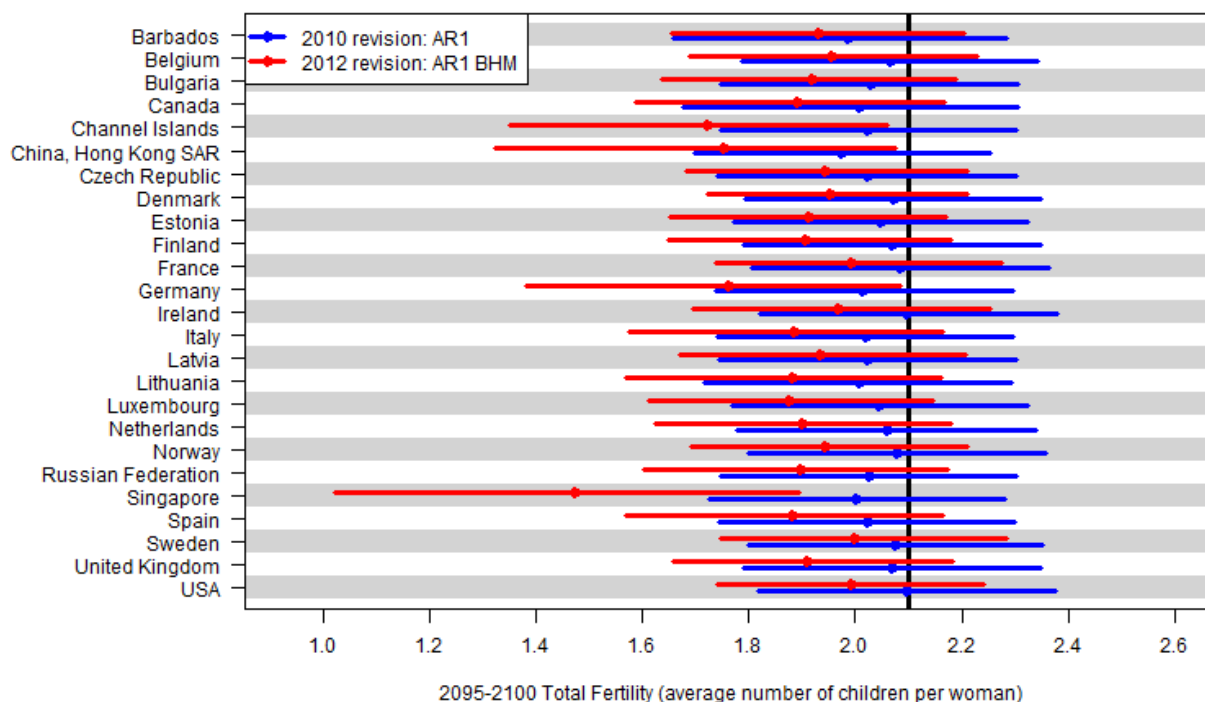
TABLE V.1. LOW FERTILITY COUNTRIES HAVING EXPERIENCED SOME INCREASE IN AT LEAST TWO CONSECUTIVE PERIODS

Country or area	Lowest level of total fertility	Region	Country or area	Lowest level of total fertility	Region
Barbados	1995-2000	Caribbean	Italy	2000-2005	Southern Europe
Belgium	2000-2005	Western Europe	Latvia	2000-2005	Northern Europe
Bulgaria	2000-2005	Eastern Europe	Lithuania	2005-2010	Northern Europe
Canada	2005-2010	Northern America	Luxembourg	1985-1990	Western Europe
Channel Islands	1985-1990	Northern Europe	Netherlands	1985-1990	Western Europe
China, Hong Kong SAR	2000-2005	Eastern Asia	Norway	1985-1990	Northern Europe
Czech Republic	2000-2005	Eastern Europe	Russian Federation	2000-2005	Eastern Europe
Denmark	1985-1990	Northern Europe	Singapore	1985-1990	South-Eastern Asia
Estonia	2000-2005	Northern Europe	Spain	2000-2005	Southern Europe
Finland	1975-1980	Northern Europe	Sweden	2000-2005	Northern Europe
France	1995-2000	Western Europe	United Kingdom	1980-1985	Northern Europe
Germany	1995-2000	Western Europe	United States of America	1980-1985	Northern America
Ireland	1995-2000	Northern Europe			

Country-specific ultimate fertility levels under the new AR1 hierarchical model are now smaller, though within 0.25 of a child of the *2010 Revision* projections for most low fertility countries. For 23 out of these 25 countries, the 2010 projections are within the 80% projection intervals (PIs), as constructed based on the new AR1 hierarchical model (figure V.7). By 2095-2100, the average median total fertility for these countries is projected to be 1.89 (80% projection interval 1.59-2.17) instead of 2.04 (80% projection interval 1.76-2.32). The main exception is Singapore, where the projection under the hierarchical model is much lower, with the median fertility level estimated to only reach 1.5 instead of 2.0 by 2095-2100.

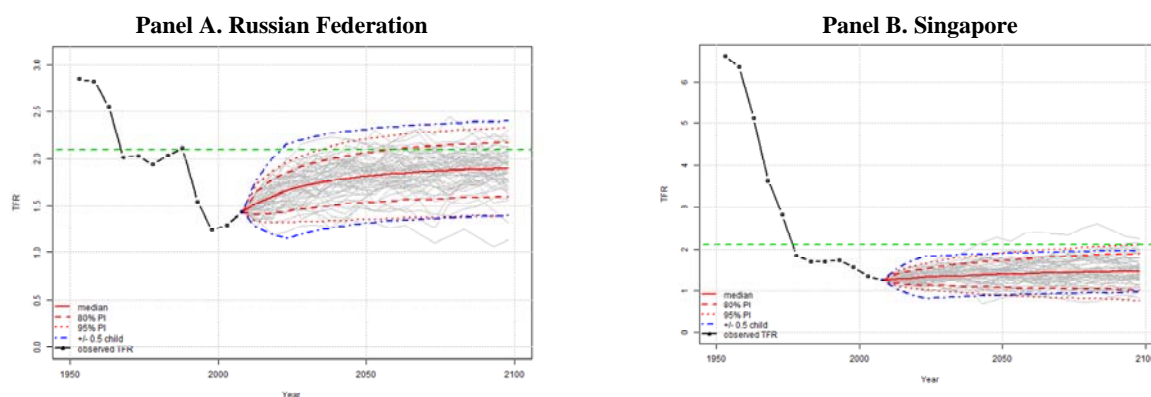
<sup>44</sup> Alkema, L., V. Kantorova, C. Menozzi and A. Biddlecom (2013). National, regional, and global rates and trends in contraceptive prevalence and unmet need for family planning between 1990 and 2015: a systematic and comprehensive analysis. *Lancet*, 381:1642-1652. [http://dx.doi.org/10.1016/S0140-6736\(12\)62204-1](http://dx.doi.org/10.1016/S0140-6736(12)62204-1)

**Figure V.7. Comparison of total fertility projections for 2095-2100 with 80% projection intervals between the 2010 and 2012 Revisions for 25 low fertility countries used to estimate the AR1 Bayesian Hierarchical Model (BHM)**



The effect of the new AR1 hierarchical model varies for each low fertility country depending on its past experience as can be seen in figure V.8 for countries like the Russian Federation and Singapore.

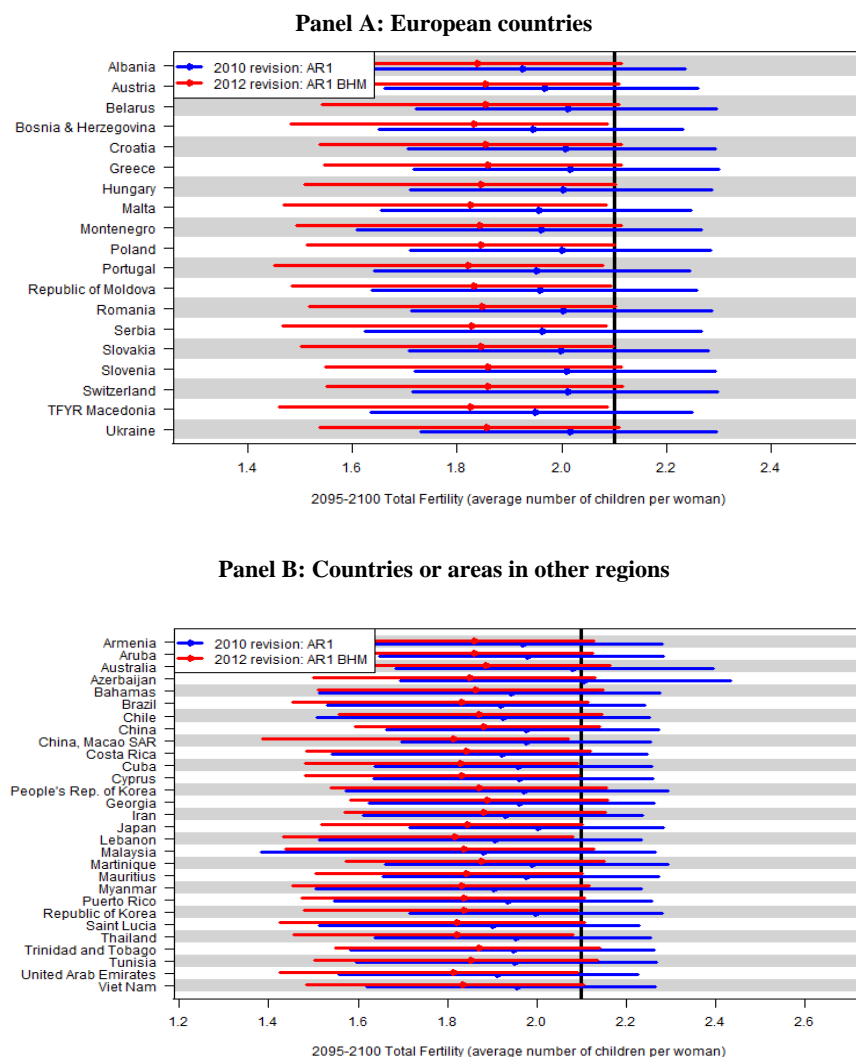
**Figure V.8: Projections of total fertility with 80% and 95% projection intervals for selected low fertility countries**



The new AR1 hierarchical model also projects only small differences in total fertility by 2095-2100 between the 2010 and 2012 Revisions for the 50 other countries or areas experiencing low fertility in 2005-2010 (and no sign of increase in at least two consecutive periods). In all instances, the 2012 projections compared to the 2010 Revision are slightly lower (on average by about 0.1 child) as seen in figure V.9 with an average median fertility level of 1.85 (80% projection interval 1.5-2.1).



**Figure V.9. Comparison of total fertility projections for 2095-2100 with 80% projection intervals between the 2010 and 2012 Revisions for all low fertility countries in 2005-2010 not having experienced any increase in at least two consecutive periods between 1950-2010**



Overall the majority of countries (including among those in 2005-2010 still experiencing medium-high fertility) are assumed to experience low fertility sometimes between 2010 and 2100 as seen in figure V.10 (right-lower quadrant B).

**Figure V.10. Timing when countries reach lowest median total fertility**

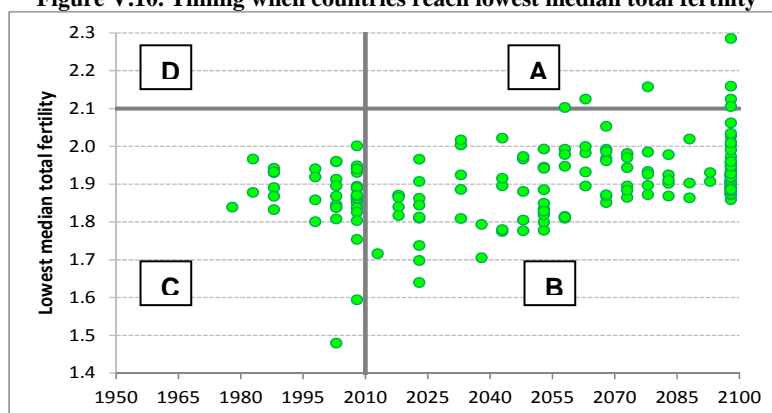
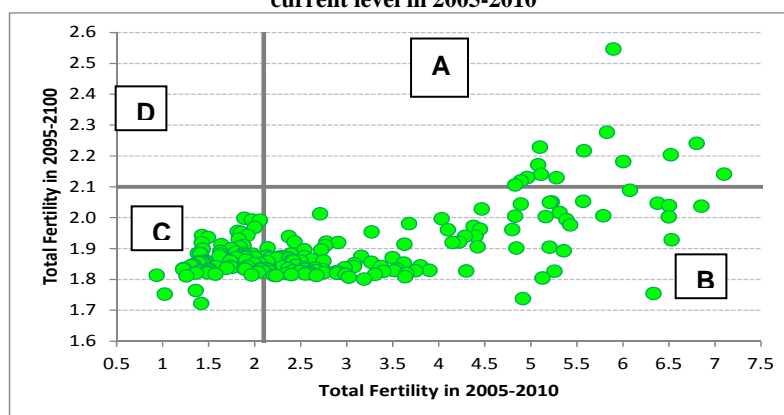


Figure V.11 shows the relationship between the total fertility estimates for the 2005-2010 period and the median projection for the 2095-2100 period:

- A. There are only 15 countries with fertility above 2.1 in 2005-2010, which are projected to have fertility levels still above 2.1 children per woman in 2095-2100 (right-upper quadrant A).
- B. Most of the high and medium fertility countries in 2005-2010 are projected to have fertility levels below 2.1 children per woman in 2095-2100 (right-lower quadrant B).
- C. Almost all low fertility countries (below 2.1 children per woman) in 2005-2010 will still have a fertility of below 2.1 children per woman in 2095-2100 (left-lower quadrant C)
- D. There is not a single country with below-replacement fertility in 2005-2010, for which the fertility level is projected to be above 2.1 children per woman in 2095-2100 (left-higher quadrant D).

**Figure V.11. Median projection of total fertility by 2095-2100 compared to current level in 2005-2010**



In summary the *2012 Revision* does not impose any long term convergence toward a replacement level of 2.1 children per woman for all countries. Future long-term fertility levels are country-specific, and informed by statistical distributions that incorporate the empirical experience of all 25 low-fertility countries having already experienced some increase in at least two consecutive periods.

The results of this new modelling approach are country-specific projections of total fertility that are fully reproducible and take into account past empirical trends. Extensive documentation for all countries and areas has been posted online<sup>45</sup>, and further details about the methodology are available from Alkema et al.<sup>46</sup> and Raftery et al.<sup>47</sup>. In addition, an open-source and portable software implementation of the new UN approach to project total fertility, based on the R statistical language, developed by Sevcikova et al.<sup>48</sup> is available as a fully documented R package (bayesTFR<sup>49</sup>) through the public R CRAN archive together with a user-friendly Graphical User Interface (bayesDem<sup>50</sup>), and the full dataset used for the *2012 Revision*<sup>51</sup>. Version 3.0-9 of the bayesTFR package was used to compute the final set of projections used for the *2012 Revision of the World Population Prospects*<sup>52</sup>.

## 2. High-fertility assumption

Under the high variant, fertility is projected to remain 0.5 children above the fertility in the medium variant over most of the projection period. By 2020-2025, 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 2.1 children per woman in the medium variant have a total fertility of 2.6 children per woman in the high variant.

## 3. Low-fertility assumption

Under the low variant, fertility is projected to remain 0.5 children below the fertility in the medium variant over most of the projection period. By 2020-2025, 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 2.1 children per woman in the medium variant have a total fertility of 1.6 children per woman in the low variant.

## 4. Constant-fertility assumption

For each country, fertility remains constant at the level estimated for 2005-2010.

## 5. Instant-replacement assumption

For each country, fertility is set to the level necessary to ensure a net reproduction rate of 1 starting in 2010-2015. Fertility varies over the rest of the projection period in such a way that the net reproduction rate always remains equal to unity thus ensuring, over the long-run, the replacement of the population.

<sup>45</sup> United Nations, Department of Economic and Social Affairs, Population Division (2013). *World Population Prospects: The 2012 Revision*. New York. Online plots of projections of total fertility: median, 80% and 95% projection intervals, high and low WPP fertility variants: [http://esa.un.org/unpd/wpp/fertility\\_figures/interactive-figures\\_TF-trajectories.htm](http://esa.un.org/unpd/wpp/fertility_figures/interactive-figures_TF-trajectories.htm).

<sup>46</sup> Alkema L., A.E. Raftery, P. Gerland, S.J. Clark, F. Pelletier, T. Buettner, G.K. Heilig (2011). Probabilistic Projections of the Total Fertility Rate for All Countries. *Demography*, vol. 48, number 3, pp. 815-839, doi: 10.1007/s13524-011-0040-5 and *Working Paper of the Center for Statistics and the Social Sciences*, University of Washington, 2010, vol. 97. URL <http://www.csss.washington.edu/Papers/wp97.pdf>.

<sup>47</sup> Raftery, A.E., L. Alkema, and P. Gerland (2013). "Bayesian Population Projections for the United Nations." *Statistical Science*. In press. [http://www.imstat.org/sts/future\\_papers.html](http://www.imstat.org/sts/future_papers.html).

<sup>48</sup> Sevcikova H., L. Alkema, A.E. Raftery (2011). bayesTFR: An R Package for Probabilistic Projections of the Total Fertility Rate. *Journal of Statistical Software*, vol. 43, number 1, pp. 1-29. URL: <http://www.jstatsoft.org/v43/i01/>.

<sup>49</sup> Sevcikova H., L. Alkema, A.E. Raftery (2013). bayesTFR: Bayesian Fertility Projection. *R Package and documentation*: <http://cran.r-project.org/web/packages/bayesTFR/>.

<sup>50</sup> Sevcikova H. (2013). bayesDem: Graphical User Interface for bayesTFR and bayesLife. *R Package and documentation*: <http://cran.r-project.org/web/packages/bayesDem/>.

<sup>51</sup> Sevcikova H. et al. (2013). wpp2012: World Population Prospects 2012. *R Package and documentation*: <http://cran.r-project.org/web/packages/wpp2012/>.

<sup>52</sup> The estimates of the double logistic parameters are based on ten parallel chains of 62,000 iterations discarding the first 2,000 of each chain to yield a total of 180,000 samples of all model parameters. For each country, 100,000 trajectories were projected, and used to derive the median and other projection intervals. Total computation time was about 1 day on a 64-bit Windows 7 workstation with multicore processors. The seed of the random number generator for the Markov Chain Monte Carlo estimation used was: 20130523.

## B. MORTALITY ASSUMPTIONS: INCREASING LIFE EXPECTANCY FOR MOST COUNTRIES

### 1. Normal-mortality assumption

Assumptions are made in terms of life expectancy at birth by sex. As in previous *Revisions*, for countries where mortality was assumed to follow a declining trend starting in 2010, life expectancy was generally assumed to rise over the projection period for most countries. In contrast with the assumptions made about future fertility trends, only one variant of future mortality trends (median path) was used for each country for the standard projection variants (e.g., high, medium and low fertility variants).

The 2012 *Revision* of the *World Population Prospects* uses new probabilistic methods for projecting life expectancy at birth building on the same approach used in earlier revisions (i.e., modelling of the pace of change of life expectancy at a given level of mortality), but incorporates recent methodological developments done in collaboration with the Probabilistic Projections Group of the Center for Statistics and the Social Sciences (CSSS) of the University of Washington<sup>53</sup>. The standard mortality projection assumption used for the 2012 *Revision* introduces two new innovations: (1) future values of female life expectancy at birth are based on a new probabilistic projection model of life expectancy at birth (random walk with drift model where the drift is determined by a Bayesian Hierarchical Model (BHM))<sup>54</sup>, and (2) future male life expectancies at birth take into account the correlation between female and male life expectancies and the fact that female life expectancy is typically higher than for males. In the 2012 *Revision*, the gap between female and male life expectancies is a function of female life expectancy and modelled using a new autoregressive model with an error term that has a Student's t-distribution rather than a normal one, to account for outliers, often corresponding to periods of conflicts, disasters or crises<sup>55</sup>. The method is based on empirical mortality trends estimated for the 2012 *Revision* for all countries<sup>56</sup> of the world (excluding those having ever experienced 2% or more adult HIV prevalence) for the period 1950 to 2010 (or up to 2010-2015 for Afghanistan and Syria).

#### a. General approach

The often dramatic decline of mortality was - and is - a driving force behind the profound changes to population trends observed during the past two centuries. While first limited to a small number of countries in the world, the decline of mortality and rise in life expectancy has now become a global phenomenon.

In past revisions of the *World Population Prospects*, for countries where mortality was assumed to follow a declining trend starting in 2010, the pace of improvement of life expectancy at birth was set deterministically for each sex and country based on one of five models of gains in life expectancy estimated from a broad empirical basis of increasing life expectancy during the period 1950 to 2005, covering life expectancies between 50 and about 85 years<sup>57</sup>. The models represented the average experience of this historical period grouped according to the 90th percentile (very fast, modelled on Japan), the 75th percentile (fast model) the arithmetic mean (medium model), the lowest 25th percentile (slow model), and the lowest 10th percentile (the very slow model). These models produce smaller gains

<sup>53</sup> Raftery, A.E., N. Li, H. Ševčíková, P. Gerland, and G.K. Heilig (2012). "Bayesian probabilistic population projections for all countries." *Proceedings of the National Academy of Sciences* 109 (35):13915-13921. doi:10.1073/pnas.1211452109.

<sup>54</sup> Raftery, A. E., J. E. Chunn, P. Gerland, and H. Ševčíková (2013). "Bayesian Probabilistic Projections of Life Expectancy for All Countries". *Demography*, 50(3), 777-801. doi:10.1007/s13524-012-0193-x.

<sup>55</sup> Raftery, A. E., N. Lalic, and P. Gerland (2012). "Joint Probabilistic Projection of Female and Male Life Expectancy". Paper presented at the *Annual Meeting of the Population Association of America*, 3-5 May 2012, San Francisco, CA. <http://paa2012.princeton.edu/download.aspx?submissionId=120140>.

<sup>56</sup> Only countries or areas with 90,000 persons or more in 2013 are considered.

<sup>57</sup> United Nations, Department of Economic and Social Affairs, Population Division (2010). *World Population Prospects. The 2006 Revision*, Vol. III, ST/ESA/SER.A/263. Chapter VI. Methodology of the United Nations population estimates and projections, pp. 121-159. [http://www.un.org/esa/population/publications/WPP2006RevVol\\_III/WPP2006RevVol\\_III\\_final.pdf](http://www.un.org/esa/population/publications/WPP2006RevVol_III/WPP2006RevVol_III_final.pdf).

the higher the life expectancy already reached. The selection of a model for each country was based on recent trends in life expectancy by sex. For countries highly affected by the HIV/AIDS epidemic, the model incorporating a slow pace of mortality decline was generally used to project a certain slowdown in the reduction of general mortality risks not related to HIV/AIDS.

The new probabilistic method used in the *2012 Revision* for projecting life expectancy at birth is done in two separate steps:

The first step focuses on progress made in female life expectancy at birth, and models the sequence of change from high to low mortality<sup>58</sup>. The transition from high to low mortality can be decomposed into two processes, each of which can be approximated by a logistic function. The first process consists of initial slow growth and diffusion of progress against mortality (e.g., small mortality improvements at low levels of life expectancy associated with diffusion of hygiene and improved nutrition), followed by a period of accelerated improvements, especially for infants and children (e.g., larger gains associated with greater social and economic development, mass immunization, etc.). The second process kicks in once the easiest gains have been achieved against infectious diseases, and produces continuing gains against non-communicable diseases. These improvements occur at a slower pace because of ever-greater challenges in preventing premature deaths at older ages resulting, among other things, from cardiovascular diseases and neoplasm, and to the delay of the onset of aging<sup>59</sup>.

For all countries undergoing mortality transition, the pace of improvement in life expectancy at birth is decomposed into a systematic decline and random distortion terms. The pace of the systematic gains in life expectancy at birth is modelled as a function of its level, based on the current UN methodology using a double-logistic improvement function. The parameters of the double-logistic function are estimated using a Bayesian Hierarchical Model (BHM), which results in country-specific distributions for the parameters of the gains in life expectancy. These distributions are informed by historical trends within the country (including pre-1950 data for 29 countries with good vital registration<sup>60</sup>), as well as the variability in historical mortality trends of all countries. For the *2012 Revision*, historical series have only been included in this analysis since 1870 due to the lack of clear mortality decline in the ten countries with earlier data. This approach not only allows to better take into account the historical experience of each country (at least since the 1950s for all countries), but also to reflect the uncertainty about future gains in life expectancy at birth based the past experience of all other countries at similar level of mortality. The model is hierarchical because in addition to the information available at the country level, a second-level (i.e., the world's experience through the information of all the countries) is used to inform the statistical distributions of the parameters of the double-logistic.

Under these conditions, the pace of improvement and the asymptotic limit in future gains in female life expectancy vary for each projected trajectory, but ultimately is informed and constrained by the finding that the rate of increase of maximum female life expectancy over the past 150 years has been

<sup>58</sup> Raftery, A. E., J. E. Chunn, P. Gerland, and H. Ševčíková (2013). "Bayesian Probabilistic Projections of Life Expectancy for All Countries". *Demography*, 50(3), 777-801. doi:10.1007/s13524-012-0193-x.

<sup>59</sup> Fogel, R. W. (2004). *The escape from hunger and premature death, 1700–2100: Europe, America, and the Third World*. Cambridge, UK: Cambridge University Press. Riley, J. C. (2001). *Rising life expectancy: A global history*. Cambridge, UK: Cambridge University Press.

<sup>60</sup> Consolidated historical dataset (e0F\_supplemental.txt and e0M\_supplemental.txt for female and male respectively) for 29 countries or areas covering the period 1750-1950 (including 20 countries with data since at least 1900) as part of the R Package used for this analysis (bayesLife and wpp2012), and based on a series for 5-year periods from the following sources: (1) University of California at Berkeley (USA), and Max Planck Institute for Demographic Research (Germany). (2012). *Human Mortality Database* Available at [www.mortality.org](http://www.mortality.org) or [www.humanmortality.de](http://www.humanmortality.de). Data downloaded on 9 Jan. 2012; (2) University of California at Berkeley (USA), Max Planck Institute for Demographic Research (Germany), and Institut National d'Etudes Démographiques (France). *Human Life-Table Database (2011)*. Available at [www.lifetable.de](http://www.lifetable.de). Data downloaded on 29 Dec. 2011; (3) Statistics Finland (2006). *Statistical Yearbook of Finland 2006*; (4) Hungarian Central Statistical Office (2006). *Hungary Demographic Yearbook 2005*; (5) Japan Ministry of Internal Affairs and Communication (2012). *Historical Statistics of Japan*. Available at: [www.stat.go.jp/english/data/chouki/](http://www.stat.go.jp/english/data/chouki/); (6) Andreev E.M. et al. (1998). *Demographic History of Russia 1927-1959*. Informatika, Moscow.

highly linear<sup>61</sup> (i.e., about 2.4 years per decade), albeit at slightly lower pace once the leading countries started to exceed 75 years of female life expectancy at birth in the 1960s<sup>62</sup> (about 2.26 years of gains per decade). By assuming that the asymptotic average rate of increase in life expectancy is nonnegative, life expectancy is assumed to continually increase (on average), and no limit is imposed to life expectancy in the foreseeable future. The increase in maximum female life span among countries with highest life expectancy and reliable data on very old age provide further guidance on future rate of progress which has also been increasingly linearly at least since the 1970s<sup>63</sup> (about 1.25 years per decade for countries like Sweden and Norway), and is used to inform the asymptotic average rate of increase in female life expectancy used in the *2012 Revision*<sup>64</sup>.

The second step focuses on male mortality, and models the gap between female and male life expectancy at birth. Probabilistic projections of female life expectancy at birth (obtained through step one) are used in conjunction with stochastic projections of the gender gap to produce probabilistic projections of male life expectancy at birth, taking into account the correlation between female and male life expectancies, and the existence of outliers during periods of crises or conflict<sup>65</sup>.

The gap in life expectancy at birth between females and males is modelled using an autoregressive model with female life expectancy used as a covariate. A large body of literature exists on biological, behavioural and socioeconomic factors underlying the gap in life expectancy between females and males<sup>66</sup>, and the recent narrowing of the gap in high-income countries.<sup>67</sup> The pattern of decline in the gap in life expectancy observed for high-income countries, and for some emerging economies is assumed to apply in the future to other countries as well through the diffusion of effective public health and safety measures and medical interventions.<sup>68</sup> Practically this means that based on past experience across the world, the future gender gap is expected to widen when life expectancy is still low, but once female life expectancy reaches about 75 years, the gap stops widening and starts narrowing up to about 83 years (as observed in high income countries, and some emerging economies). Once projected future female life expectancy reaches or exceeds the highest observed levels of female life expectancy (i.e., about 83 years for the *2012 Revision*), the gap is modelled as a random walk with normally distributed changes and no drift because little information on the determinants of changes in the gap exist at these high ages and beyond.

<sup>61</sup> Oeppen J, and J.W. Vaupel (2002). Broken limits to life expectancy. *Science* 296:1029–1031. Vaupel, J.W. and K.G.V. Kistowski (2005). "Broken Limits to Life Expectancy." *Ageing Horizons* (3):6-13.

<sup>62</sup> Vallin, J., and F. Mesle (2009). The Segmented Trend Line of Highest Life Expectancies. *Population and Development Review*, 35(1), 159-187. doi:10.1111/j.1728-4457.2009.00264.x.

<sup>63</sup> Wilmoth, J. R., L. J. Deegan, H. Lundstrom, and S. Horiuchi (2000). Increase of maximum life-span in Sweden, 1861-1999. *Science*, 289(5488), 2366-2368. Wilmoth, J. R. and J-M. Robine (2003). "The world trend in maximum life span," in: J. R. Carey and S. Tuljapourkar (eds.), *Life Span: Evolutionary, Ecological, and Demographic Perspectives*, supplement to vol. 29, *Population and Development Review*, pp. 239–257. Wilmoth, J. R. and N. Ouellette (2012). "Maximum human lifespan: Will the records be unbroken?", Paper presented at the European Population Conference, Stockholm, Sweden, 13-16 June.

<sup>64</sup> Following Raftery et al. (2013). formal notation, to set the posterior median to an annual gain of 0.125 year (or 5-year gain of 0.625 in this context), the upper bound value of 0.653 was used for the world prior ( $z$ ) and country-specific prior ( $z^c$ ) in the estimation of the double-logistic parameters.

<sup>65</sup> Raftery, A. E., N. Lalic, and P. Gerland (2012). "Joint Probabilistic Projection of Female and Male Life Expectancy". Paper presented at the *Annual Meeting of the Population Association of America*, 3-5 May 2012, San Francisco, CA. <http://paa2012.princeton.edu/download.aspx?submissionId=120140>.

<sup>66</sup> Oksuzyan, A., K. Juel, J. Vaupel, and K. Christensen (2008). Men: good health and high mortality. Sex differences in health and aging. *Aging Clinical and Experimental Research*, 20 (2), 91. Rogers, R., B. Everett, J. Onge, and P. Krueger (2010). Social, behavioral, and biological factors, and sex differences in mortality. *Demography*, 47 (3), 555–578. Trovato, F. and N. Heyen (2006). A varied pattern of change of the sex differential in survival in the G7 countries. *Journal of Biosocial Science*, 38 (3), 391. Trovato, F. and N. Lalu (1996). Narrowing sex differentials in life expectancy in the industrialized world: early 1970's to early 1990's. *Social Biology*, 43 (1-2), 20. Trovato, F. and N. Lalu (1998). Contribution of cause-specific mortality to changing sex differences in life expectancy: seven nations case study. *Social Biology*, 45 (1-2), 1.

<sup>67</sup> Gleit, D. and S. Horiuchi (2007). The narrowing sex differential in life expectancy in high income populations: effects of differences in the age pattern of mortality. *Population Studies*, 61 (2), 141–159. Meslé, F. (2004). Gender gap in life expectancy: the reasons for a reduction of female advantage. *Revue d'épidémiologie et de santé publique*, 52 (4), 333. Oksuzyan, A., K. Juel, J. Vaupel, and K. Christensen (2008). Men: good health and high mortality. Sex differences in health and aging. *Aging Clinical and Experimental Research*, 20 (2), 91. Pampel, F. (2005). Forecasting sex differences in mortality in high income nations: The contribution of smoking. *Demographic Research*, 13 (18), 455–484.

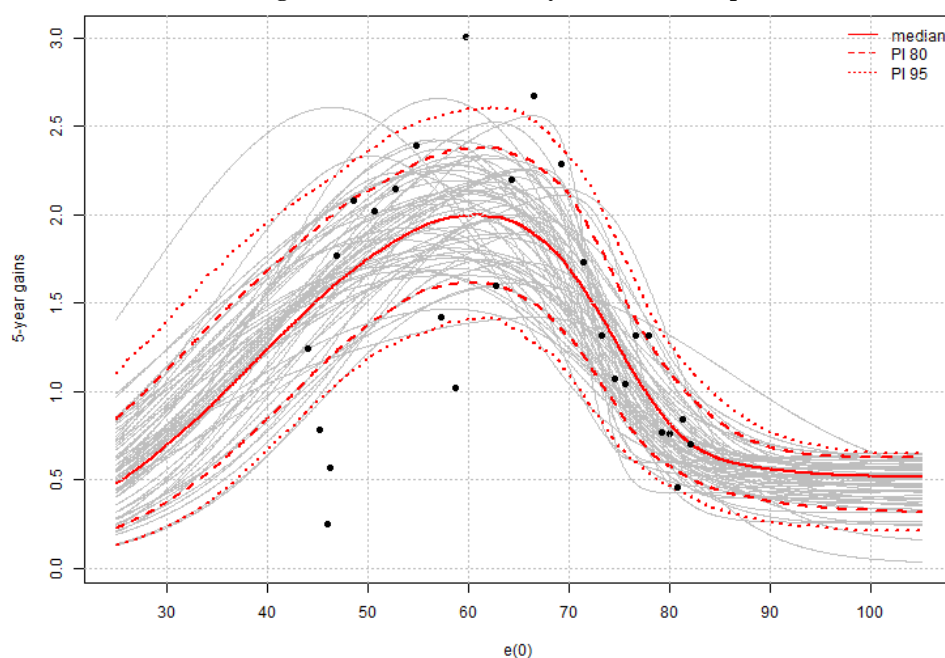
<sup>68</sup> Vallin, J. (2005). "Mortality, sex, and gender". In *Demography: Analysis and Synthesis*, volume 2 (pp. 177–194). Academic Press. Bongaarts, J. (2009). "Trends in senescent life expectancy". *Population Studies*, 63 (3), 203–213.



To produce joint probabilistic projections of female and male life expectancy, a large number of future trajectories for the gap in life expectancy are simulated. For each simulated value of the gap, the simulated male life expectancy projection is obtained by subtracting it from a simulated value of female life expectancy projection.

To construct projections of female life expectancy at birth for all countries without generalized HIV/AIDS epidemic, the BHM model is used to generate 1,450,000<sup>69</sup> double-logistic curves for each country (see example in figure V.12), representing the uncertainty in the double-logistic gain function (graphs of this double-logistic curve are available online<sup>70</sup>). The sample of double-logistic curves is then used to calculate over 100,000 life expectancy projections for each country. For each trajectory, at any given time, the double-logistic function gives the expected improvement in life expectancy based on its current level. A distortion term is added to the expected gain to calculate the projected change in life expectancy. (This distortion term represents the deviations of life expectancy increments from the double-logistic curve, as observed in past experiences).

**Figure V.12. Female gains in life expectancy at birth and projection intervals of double-logistic curves for Canada (systematic decline part)**



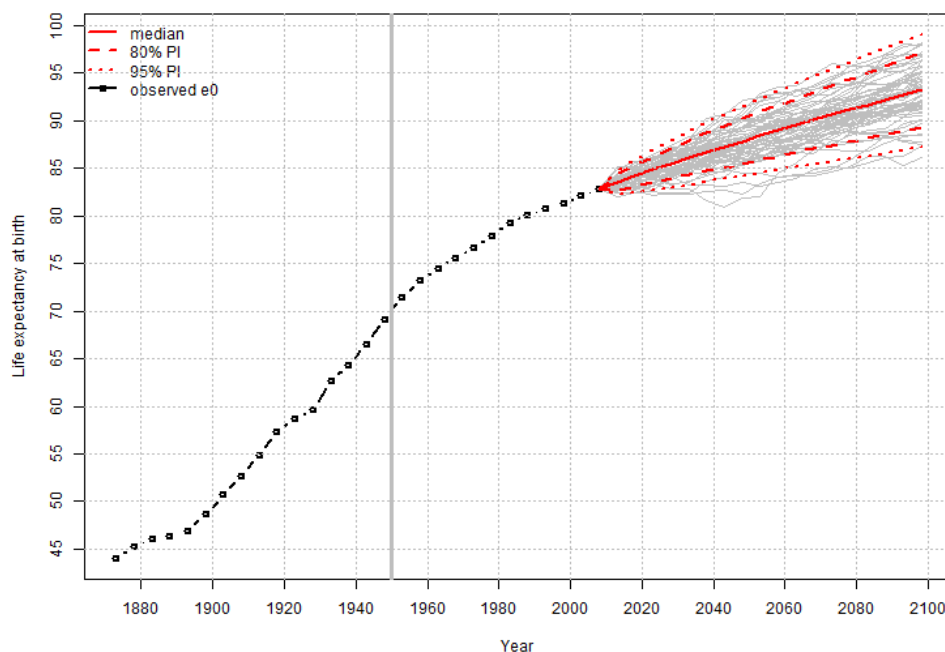
NOTE: The observed five-year gains by level of life expectancy at birth ( $e(0)$ ) are shown by black dots. For clarity, only 60 trajectories from 1,450,000 are displayed. The median projection is the solid bold red line, and the 80% and 95% projection intervals are displayed as dashed and dotted red lines respectively. In addition to estimates of female life expectancy at birth for the period 1950-2010 (based on the *2012 Revision*), historical data for pre-1950 periods are included in the analysis upon availability. For Canada, 5-year series for the period 1870-1950 are only used.

<sup>69</sup> Actually ten simulations are run in parallel with 155,000 iterations performed for each simulation, and the first 10,000 are discarded.

<sup>70</sup> United Nations, Department of Economic and Social Affairs, Population Division (2013). *World Population Prospects: The 2012 Revision*. New York. Online plots of female gains in life expectancy at birth curves (based on Double-Logistic function) from the Bayesian Hierarchical Model (BHM): median, 80% and 95% projection intervals: [http://esa.un.org/unpd/wpp/LifeExpectancy\\_figures/interactive-figures\\_DL-functions.htm](http://esa.un.org/unpd/wpp/LifeExpectancy_figures/interactive-figures_DL-functions.htm).

For each country, the end result is over 100,000 projected trajectories of female life expectancy at birth (based on a systematic sampling of 1/14 of the 1,450,000 simulated trajectories of change in fertility). The median of these 100,000 trajectories is used as the standard mortality projection in the *World Population Prospects*. To evaluate future trends in female life expectancy at birth, 80% and 95% projection intervals are also calculated (see figure V.13 for Canada, additional tables<sup>71</sup> and graphs<sup>72</sup> are available online for all countries).

**Figure V.13. Probabilistic trajectories of projected female life expectancy at birth (2010-2100) for Canada**



NOTE: For clarity, only 60 trajectories from 100,000 are displayed. The median projection is the solid bold red line, and the 80% and 95% projection intervals are displayed as dashed and dotted red lines respectively. In addition to estimates of female life expectancy at birth for the period 1950-2010 (based on the *2012 Revision*), historical data (i.e., before 1950 as marked by vertical grey line) are included in the analysis upon availability. For Canada, 5-year series for the period 1870-1950 are used.

The approach works well for most countries that have experienced normal mortality improvements since the 1950s. But two small sets of countries stand out for either (a) much faster or (b) much slower improvements than typically experienced in the past by other countries. Countries that have experienced much faster gains in life expectancy at birth since the 1950s are often countries that still have relatively low life expectancy at birth even though they have made substantially faster progress than those historically observed in other countries (e.g., Afghanistan, Bangladesh, Bhutan, Bolivia, Cambodia, Cape Verde, Ecuador, Eritrea, Lao PDR, Lebanon, Madagascar, Maldives, Nepal, Nicaragua, Niger, Oman, Peru, Turkey, Western Sahara). The second set of countries includes economies in transition (e.g., Eastern Europe and former Soviet Union) that have experienced long period of stagnating or even increasing mortality. In both cases, the four parameters of the double logistic function responsible for future gains beyond around 60 years of life expectancy have been informed by the experience of the leading countries

<sup>71</sup> United Nations, Department of Economic and Social Affairs, Population Division (2013). *World Population Prospects: The 2012 Revision*. New York. Online tables of probabilistic projections of female life expectancy at birth: median, 80% and 95% projection intervals [http://esa.un.org/unpd/wpp/LifeExpectancy\\_figures/data/wpp2012\\_mort\\_ppp\\_life\\_expectancy\\_0\\_female.xls](http://esa.un.org/unpd/wpp/LifeExpectancy_figures/data/wpp2012_mort_ppp_life_expectancy_0_female.xls).

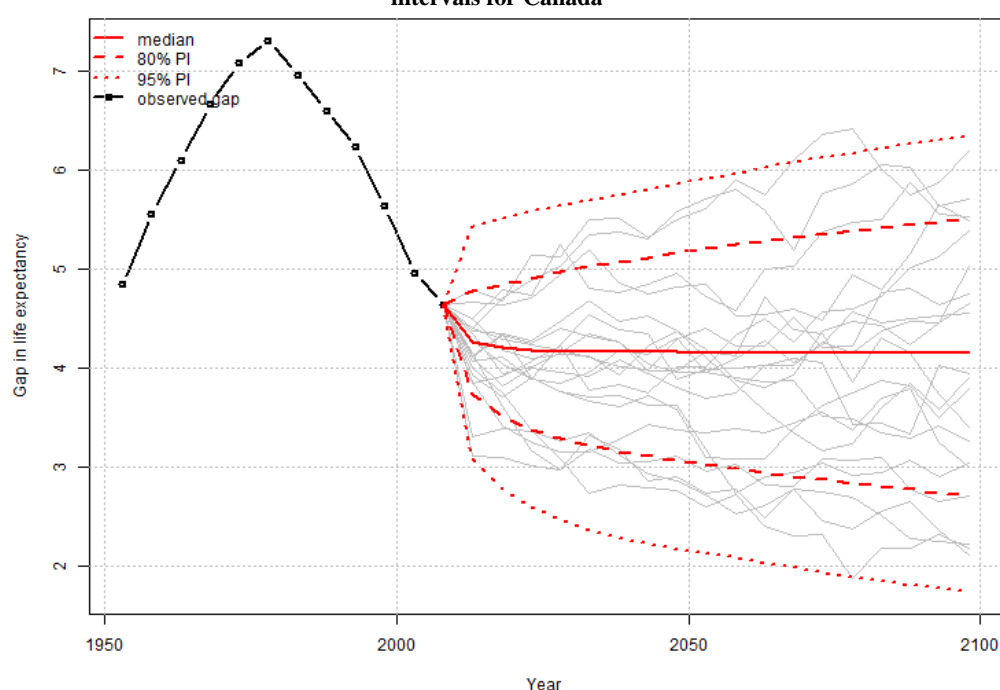
<sup>72</sup> United Nations, Department of Economic and Social Affairs, Population Division (2013). *World Population Prospects: The 2012 Revision*. New York. Online plots of probabilistic projections of female life expectancy at birth: median, 80% and 95% projection intervals: [http://esa.un.org/unpd/wpp/LifeExpectancy\\_figures/interactive-figures\\_e0-trajectories-Female.htm](http://esa.un.org/unpd/wpp/LifeExpectancy_figures/interactive-figures_e0-trajectories-Female.htm).



in their region<sup>73</sup>. In the first case, this approach was used to temper over-optimistic gains for some countries in the distant future that would lead to implausible crossovers in long term projections (e.g., lagging countries today becoming leaders by 2100). In the second case, this approach was used to provide further guidance on long term potential gains for countries that have experienced mortality stagnation or worsening (i.e., in the long run these countries will gradually catch up with the more advanced countries in their region).

To construct projections of male life expectancy at birth, the gender gap autoregressive model is used in conjunction with probabilistic projections of female life expectancy at birth to generate 100,000 trajectories for each country (see example in figure V.14), representing the uncertainty in the future gap between female and male life expectancy projections (graphs of the gender gap trajectories are available online<sup>74</sup>).

**Figure V.14. Gap in female-male life expectancy at birth and projection intervals for Canada**



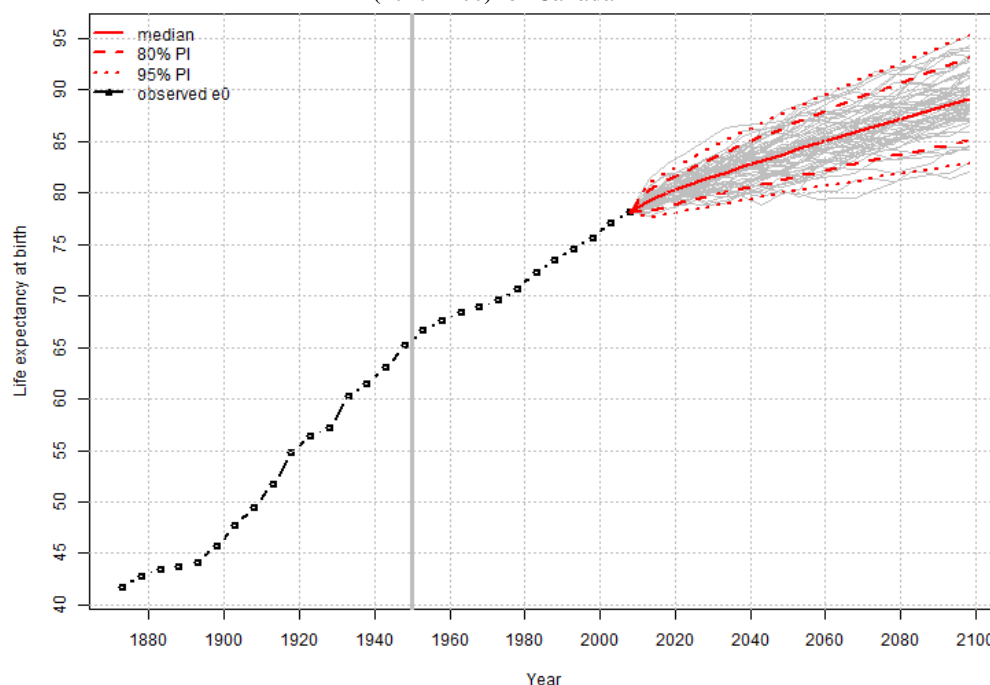
NOTE: The observed gap between female and male life expectancy at birth are shown by black dots and solid line. For clarity, only 60 trajectories from 100,000 are displayed. The median projection is the solid bold red line, and the 80% and 95% projection intervals are displayed as dashed and dotted red lines respectively.

<sup>73</sup> Following Raftery et al. (2013), formal notation, country-specific priors were specified for the first set of countries for the upper bound of the  $\Delta_{c3}$ ,  $\Delta_{c4}$ ,  $k^c$  and  $z^c$  double-logistic parameters while for the second set of countries lower bound were used for these parameters. In general, the upper quartile of the distribution of these parameters for the best performers in each region was used to inform other countries.

<sup>74</sup> United Nations, Department of Economic and Social Affairs, Population Division (2013). *World Population Prospects: The 2012 Revision*. New York. Online plots of female-male gap in life expectancy at birth: median, 80% and 95% projection intervals: [http://esa.un.org/unpd/wpp/LifeExpectancy\\_figures/interactive-figures\\_e0-MFGap.htm](http://esa.un.org/unpd/wpp/LifeExpectancy_figures/interactive-figures_e0-MFGap.htm).

The sample of gender gap trajectories is then used to calculate over 100,000 male life expectancy projections for each country. The median of these projections is used as the standard mortality projection in the *World Population Prospects*. To evaluate future trends in male life expectancy at birth, 80% and 95% projection intervals are also calculated (see figure V.15 for Canada, additional tables<sup>75</sup> and graphs<sup>76</sup> are available online for all countries).

**Figure V.15. Probabilistic trajectories of projected male life expectancy at birth (2010-2100) for Canada**



NOTE: For clarity, only 60 trajectories from 100,000 are displayed. The median projection is the solid bold red line, and the 80% and 95% projection intervals are displayed as dashed and dotted red lines respectively. In addition to estimates of life expectancy at birth for the period 1950-2010 (based on the 2012 Revision), historical data (i.e. before 1950 as marked by vertical grey line) are included in the analysis upon availability. For Canada, 5-year series for the period 1870-1950 are used.

The relationship between probabilistic projections of male and female life expectancies at birth for selected projection periods (e.g., 2010–2015, 2050–2055 and 2095–2100) can be summarized through scatter plots showing for a subsample of 500 probabilistic trajectories of life expectancy at birth for both male and female (see example in figure V.16). The 80% and 95% projection intervals are displayed as ellipses respectively. The relationship if both male and female life expectancies are equal is displayed with a diagonal line. Graphs of the joint distributions of life expectancy by sex are available online.<sup>77</sup>

As with the new modelling approach to fertility, the results of this new approach for life expectancy produces country-specific projections of life expectancy at birth that are fully reproducible and take into account past empirical trends. Extensive documentation for all countries and areas has been posted

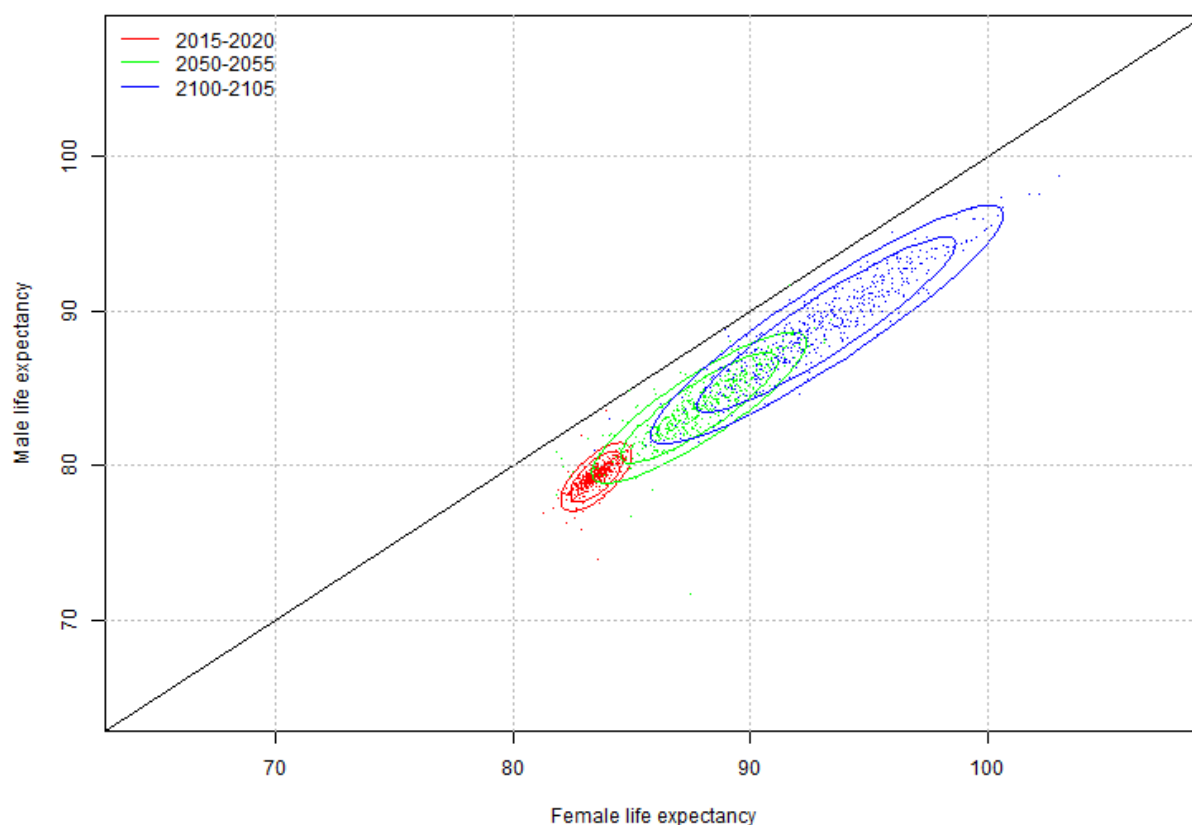
<sup>75</sup> United Nations, Department of Economic and Social Affairs, Population Division (2013). *World Population Prospects: The 2012 Revision*. New York. Online tables of probabilistic projections of male life expectancy at birth: median, 80% and 95% projection intervals [http://esa.un.org/unpd/wpp/LifeExpectancy\\_figures/data/wpp2012\\_mort\\_ppp\\_life\\_expectancy\\_0\\_male.xls](http://esa.un.org/unpd/wpp/LifeExpectancy_figures/data/wpp2012_mort_ppp_life_expectancy_0_male.xls).

<sup>76</sup> United Nations, Department of Economic and Social Affairs, Population Division (2013). *World Population Prospects: The 2012 Revision*. New York. Online plots of probabilistic projections of female life expectancy at birth: median, 80% and 95% projection intervals: [http://esa.un.org/unpd/wpp/LifeExpectancy\\_figures/interactive-figures\\_e0-trajectories-Male.htm](http://esa.un.org/unpd/wpp/LifeExpectancy_figures/interactive-figures_e0-trajectories-Male.htm).

<sup>77</sup> United Nations, Department of Economic and Social Affairs, Population Division (2013). *World Population Prospects: The 2012 Revision*. New York. Online plots of Comparison between probabilistic projections of male and female life expectancies at birth for selected projection periods: 80% and 95% prediction intervals: [http://esa.un.org/unpd/wpp/LifeExpectancy\\_figures/interactive-figures\\_e0-MFCompare.htm](http://esa.un.org/unpd/wpp/LifeExpectancy_figures/interactive-figures_e0-MFCompare.htm).

online<sup>78</sup>, and further details about the methodology are available from Raftery et al.<sup>79</sup>. In addition, an open-source and portable software implementation of the new UN approach to project life expectancy, based on the R statistical language, developed by Sevcikova et al. is available as a fully documented R package (bayesLife<sup>80</sup>) through the public R CRAN archive together with a user-friendly Graphical User Interface (bayesDem<sup>81</sup>), and the full dataset used for the *2012 Revision*<sup>82</sup>. Version 2.0-0 of the bayesLife package was used to compute the final set of projections used for the *2012 Revision of the World Population Prospects*<sup>83</sup>.

**Figure V.16. Comparison of probabilistic projections of female and male life expectancies at birth for selected periods for Canada**



NOTE: For clarity, only 500 projected trajectories from 100,000 are displayed for each sex. The 80% and 95% projection intervals are displayed as ellipses respectively. The relationship if both male and female life expectancies are equal is displayed with a diagonal line.

<sup>78</sup> United Nations, Department of Economic and Social Affairs, Population Division (2013). *World Population Prospects: The 2012 Revision*. New York. Online plots of probabilistic projections of female life expectancy at birth: median, 80% and 95% projection intervals: [http://esa.un.org/unpd/wpp/LifeExpectancy\\_figures/interactive-figures\\_e0-trajectories-Female.htm](http://esa.un.org/unpd/wpp/LifeExpectancy_figures/interactive-figures_e0-trajectories-Female.htm).

<sup>79</sup> Raftery, A. E., J. E. Chunn, P. Gerland, and H. Ševčíková (2013). "Bayesian Probabilistic Projections of Life Expectancy for All Countries". *Demography*, 50(3), 777-801. doi:10.1007/s13524-012-0193-x and Raftery, A. E., N. Lalic, and P. Gerland (2012). "Joint Probabilistic Projection of Female and Male Life Expectancy". Paper presented at the *Annual Meeting of the Population Association of America*, 3-5 May 2012, San Francisco, CA. <http://paa2012.princeton.edu/download.aspx?submissionId=120140>.

<sup>80</sup> Sevcikova, H., A. Raftery and J. Chunn (2013). bayesLife: Bayesian Projection of Life Expectancy. *R Package and documentation*: <http://cran.r-project.org/web/packages/bayesLife/index.html>.

<sup>81</sup> Sevcikova H. (2013). bayesDem: Graphical User Interface for bayesTFR and bayesLife. *R Package and documentation*: <http://cran.r-project.org/web/packages/bayesDem/index.html>.

<sup>82</sup> Sevcikova H. et al. (2013). wpp2012: World Population Prospects 2012. *R Package and documentation*: <http://cran.r-project.org/web/packages/wpp2012/>.

<sup>83</sup> The estimates of the double logistic parameters are based on ten parallel chains of 155,000 iterations discarding the first 10,000 of each chain to yield a total of 1,450,000 samples of all model parameters. For each country, 100,000 trajectories for each sex were projected, and used to derive the median and other projection intervals. Total computation time was about 2 days on a 64-bit Windows 7 workstation with multicore processors. The seed of the random number generator for the Markov Chain Monte Carlo estimation used was: 20130523.

## Projection of the age pattern of mortality

Once the path of future expectation of life was determined, mortality rates by five-year age group and sex, 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, mortality rates for the projection period were obtained by extrapolating the most recent set of mortality rates by the rates of change from either (a) country-specific historical trends upon availability, reliability and consistency over time using an extended Lee-Carter approach<sup>84</sup>, or (b) typical age-specific patterns of mortality improvement by level of mortality estimated from individual countries experiences included in the Human Mortality Database<sup>85</sup>, or from extended model life tables<sup>86</sup>. In both instances additional constraints might have been used at younger and/or older ages to insure greater consistency in sex differentials, especially at very high levels of projected life expectancies.

In other words, under such procedures, the empirical or estimated age pattern of mortality is transformed as life expectancy changes over time. For countries lacking recent or reliable information on age patterns of mortality, mortality rates 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<sup>87</sup>; Coale, Demeny and Vaughn<sup>88</sup>; Coale and Guo<sup>89</sup> and five model systems for developing countries produced by the United Nations<sup>90</sup>. These nine model life tables have been updated and extended by the Population Division in order to cover the whole age range up 100 years, and a range of life expectancies from 20 to 100.0 years<sup>91</sup>. It must be noted that the last available entry in the revised system of model life tables of 100.0 year of life expectancy, for both males and females, are not meant to represent a ceiling for human longevity.

The general approach to the projection of mortality just described is not appropriate for countries significantly affected by the HIV/AIDS epidemic. A detailed description of assumptions made and models used to estimate and project the demographic impact of HIV/AIDS is given in the next section.

### 2. The impact of HIV/AIDS on mortality

This *Revision* incorporates the demographic impact of the HIV/AIDS epidemic for 39 countries where HIV prevalence among persons aged 15 to 49 was ever equal to or greater than two per cent between 1980 and 2011 in the general population. Among the 39 countries considered, 32 countries are in Africa, 1 are in Asia and 6 in Latin America and the Caribbean (table V.2). For those countries, especially those having experienced prevalence rates of five per cent or more, a different approach for the estimation

<sup>84</sup> Li, N., R. Lee and P. Gerland (2013). Extending the Lee-Carter method to model the rotation of age patterns of mortality-decline for long-term projection. *Demography*, In press. doi:10.1007/s13524-013-0232-2. In this case, the extended Lee-Carter approach is constrained to the projected median UN life expectancy at birth by selecting appropriate increases in the level parameter ( $k_t$ ) for each of the projection periods with the age pattern ( $a_x$ ) based on the most recent period or the average 1950-2010 period, and the age pattern of mortality improvement ( $b_x$ ) gradually changes by level of mortality to reflect the fact that mortality decline is decelerating at younger ages and accelerating at old ages.

<sup>85</sup> Andreev, K., D. Gu, and P. Gerland (2013). Patterns of Mortality Improvement by Level of Life Expectancy at Birth. Paper presented at the *Annual Meeting of the Population Association of America*, New Orleans, LA. <http://paa2013.princeton.edu/papers/132554>. Note: available demographic data permits reliable estimation of the patterns of mortality improvement only up to 75-80 years of e0 for males, and 80-85 years for females. For extrapolating patterns of mortality improvement into higher levels of life expectancy at birth, smoothed linear trends were extrapolated for levels of life expectancy at birth up to 105-110 years of age.

<sup>86</sup> Li, N. and P. Gerland (2011). Modifying the Lee-Carter Method to Project Mortality Changes up to 2100. Paper presented at the *Annual Meeting of the Population Association of America* (PAA), Washington, DC. <http://paa2011.princeton.edu/papers/110555>.

<sup>87</sup> Coale, A. J., and Demeny, P. G. (1966). *Regional model life tables and stable populations*. Princeton, N.J., Princeton University Press.

<sup>88</sup> Coale, A. J., Demeny, P. G., & Vaughan, B. (1983). *Regional model life tables and stable populations* (2nd ed.). New York: Academic Press.

<sup>89</sup> Coale, A. J., and Guo, G. (1989). Revised Regional Model Life Tables at Very Low Levels of Mortality. *Population Index*, 55(4), 613-643. <http://www.jstor.org/stable/3644567>

<sup>90</sup> United Nations, Dept. of International Economic and Social Affairs, Population Division (1982). *Model life tables for developing countries*. Population studies, no. 77. New York: United Nations.

[http://www.un.org/esa/population/publications/Model\\_Life\\_Tables/Model\\_Life\\_Tables.htm](http://www.un.org/esa/population/publications/Model_Life_Tables/Model_Life_Tables.htm)

<sup>91</sup> United Nations Population Division (2010). *World population prospects: the 2010 revision—WPP 2010 extended model life tables*. New York: United Nations. Available online at: <http://esa.un.org/unpd/wpp/Model-Life-Tables/download-page.html>.

and projection of mortality must be used. Unlike other infectious diseases, HIV/AIDS has a very long incubation period in which an infected person is mostly symptom-free but infectious. Also unlike many other infectious diseases, individuals do not develop immunity, but, in the absence of treatment, almost always die as a consequence of their compromised immune system. Another reason for an explicit modelling of the HIV/AIDS is the avalanche-like process of the infection spreading through a population and the particular age pattern exhibited by HIV/AIDS. The additional deaths due to HIV/AIDS, predominantly adults in their reproductive age, are consequently distorting the usual U-shaped age-specific age profile of mortality, a feature which cannot be found in the model life tables that are available to demographers<sup>92</sup>. Thus the particular dynamic of this disease and the severity of its outcome require an explicit modelling of the epidemic.

As a consequence, instead of an overall mortality process that can be captured by standard age patterns of mortality and smooth trends of changing life expectancy, for countries highly affected by HIV/AIDS, two separate mortality processes must be modelled: the mortality due to the HIV/AIDS epidemic itself and the mortality that prevails among the non-infected population. The latter is often called “background mortality”.

Note that in countries with lower HIV prevalence rates (i.e., under 5-7%), when sufficient adult mortality empirical evidences were available (e.g., from vital registration, recent household deaths and/or parental survival from censuses and surveys, siblings survival from surveys), explicit modelling of adult mortality by sex has been used in conjunction with estimates of under-five mortality to derive mortality rates by age and sex (see online Data Sources<sup>93</sup> for country-specific details).

TABLE V.2. ADULT 15-49 HIV PREVALENCE RATE IN THE COUNTRIES MOST AFFECTED BY THE HIV/AIDS EPIDEMIC BETWEEN 1980 AND 2011

Region / Country	Adult HIV prevalence rate (%) in 2011	Maximum HIV rate (%) between 1980 and 2011	Year maximum reached	Region / Country	Adult HIV prevalence rate (%) in 2011	Maximum HIV rate (%) between 1980 and 2011	Year maximum reached
<b>Africa</b>				<b>Africa</b>			
Angola	2.1	2.1	2011	Namibia	13.4	15.9	2002
Benin	1.2	3.8	1987	Nigeria	3.7	3.8	2002
Botswana	23.4	27.0	2001	Rwanda	2.9	5.8	1989
Burkina Faso	1.1	3.8	1989	South Africa	17.3	17.3	2011
Burundi	1.3	5.1	1996	South Sudan	3.1	3.1	2008
Cameroon	4.6	5.2	2003	Swaziland	26.0	26.0	2011
Central African Rep.	4.6	9.5	1995	Togo	3.4	4.2	2003
Chad	3.1	3.7	1999	Uganda	7.2	13.6	1989
Congo	3.3	5.2	1992	UR of Tanzania	5.8	8.4	1996
Cote d'Ivoire	3.0	7.3	1996	Zambia	12.5	14.9	1993
Djibouti	1.4	2.8	1999	Zimbabwe	14.8	27.3	1998
Equatorial Guinea	4.7	4.7	2011	<b>Asia</b>			
Ethiopia	1.4	3.7	1999	Thailand	1.2	2.1	1995
Gabon	5.0	5.5	2004	<b>Latin America and the Caribbean</b>			
Ghana	1.5	2.2	2000	Bahamas	2.8	4.0	1993
Guinea-Bissau	2.5	2.5	2011	Belize	2.3	2.4	2004
Kenya	6.2	9.8	1997	Haiti	1.8	3.3	1993
Lesotho	23.3	23.5	2001	Honduras	0.6	2.8	1995
Liberia	1.0	2.5	2000	Jamaica	1.8	2.5	1998
Malawi	10.0	13.8	2001	Suriname	1.0	3.3	1996
Mozambique	11.3	11.3	2007				

SOURCE: 2011 set of UNAIDS/WHO estimates (unpublished tabulations) and UNAIDS. (2012). AIDS Info Database. Retrieved 30 November 2012, from Joint United Nations Programme on HIV/AIDS (UNAIDS) <http://www.aidsinfoonline.org/>

<sup>92</sup> Heuveline, P. (2003). HIV and Population Dynamics: A General Model and Maximum-Likelihood Standards for East Africa. *Demography*, 40(2), 217-245. doi: 10.2307/3180799.

<sup>93</sup> Data sources and related meta-information for the 2012 Revision of the *World Population Prospects* are available for each country from the following web page: <http://esa.un.org/unpd/wpp/Excel-Data/data-sources.htm> and in an Excel file (WPP2012\_F02\_METAINFO.XLS).

However, in the countries most highly affected by the HIV/AIDS epidemic, their mortality is projected by modelling explicitly the course of the epidemic and projecting the yearly incidence of HIV infection. The model (and its latest Spectrum/EPP software implementation<sup>94</sup>) developed by the UNAIDS Reference Group on Estimates, Modelling and Projections<sup>95,96</sup>, and all epidemiological parameters (including treatment data) used by UNAIDS to prepare the 2011 set of UNAIDS/WHO estimates<sup>97</sup> for the 2012 Global Report<sup>98</sup> have been used to derive the mortality impact due to HIV/AIDS.

The projection assumptions used in the *2012 Revision* assumes that the HIV incidence rate observed though 2011 will decline by 2100 to about 1/10 its 2011 value following an exponential decay function. The sex ratio of HIV incidence (female to male incidence for age 15-49) is assumed to follow a linear trend from its 2011 value to reach 1.1 in 2050 and to remain constant afterwards. Both for children and adults, the proportion of the HIV-positive population receiving treatment in each country uses estimates prepared by the World Health Organization and UNAIDS, and coverage is projected to reach 85% in 2050 if it is current below 85% or stay constant if it is above it. Coverage of interventions to prevent mother-to-child transmission of HIV is assumed to remain constant until 2100 at the level reached in each of the affected countries in 2011.

### 3. Constant-mortality assumption

Under this assumption, mortality over the projection period is maintained constant for each country at the level estimated for 2005-2010.

## C. INTERNATIONAL MIGRATION ASSUMPTIONS

### 1. Normal migration assumption

Under the normal migration assumption, the future path of international migration is set on the basis of past international migration estimates and consideration of the policy stance of each country with regard to future international migration flows. Projected levels of net migration are generally kept constant over the next decades. After 2050, it is assumed that net migration will gradually decline and reach zero by 2100.

### 2. Zero-migration assumption

Under this assumption, for each country, international migration is set to zero starting in 2010-2015.

<sup>94</sup> A special release of *Spectrum* (UNPOP100, 4 April 2013), specially extended to handle higher life expectancy projections up to age 100 was used for the *2012 revision*. Public versions of *Spectrum* are available at: <http://www.futuresinstitute.org/pages/resources.aspx>.

<sup>95</sup> Stanecki, K., Garnett, G. P., and Ghys, P. D. (2012). Developments in the field of HIV estimates: methods, parameters and trends. *Sexually Transmitted Infections*, 88(Suppl 2), i1-i2. doi: 10.1136/sextrans-2012-050885.

<sup>96</sup> Stover, J., Brown, T., and Marston, M. (2012). Updates to the Spectrum/Estimation and Projection Package (EPP) model to estimate HIV trends for adults and children. *Sexually Transmitted Infections*, 88 Suppl 2, i11-16. doi: 10.1136/sextrans-2012-050640.

<sup>97</sup> The only exception was a revised age pattern of incidence by sex for generalized epidemic provided by UNAIDS in Nov. 2012 (mean age of new infections equal to 28.1 for females and 32.5 for males).

<sup>98</sup> UNAIDS (2012). *Global report: UNAIDS report on the global AIDS epidemic 2012* (pp. 210). Geneva, Switzerland: Joint United Nations Programme on HIV/AIDS. Available online at: [http://www.unaids.org/en/media/unaids/contentassets/documents/epidemiology/2012/gr2012/20121120\\_UNAIDS\\_Global\\_Report\\_2012\\_with\\_annexes\\_en.pdf](http://www.unaids.org/en/media/unaids/contentassets/documents/epidemiology/2012/gr2012/20121120_UNAIDS_Global_Report_2012_with_annexes_en.pdf).

## D. EIGHT PROJECTION VARIANTS

The *2012 Revision* includes eight different projection variants (table V.3). Five of those variants differ among themselves only with respect to the level of fertility in each, that is, they share the assumptions made with respect to mortality and international migration. The five fertility variants are: low, medium, high, constant-fertility and instant-replacement fertility. A comparison of their results allows an assessment of the effects that different fertility paths have on other demographic parameters.

In addition to the five fertility variants, a constant-mortality variant, a zero-migration variant and a “no change” variant (i.e., both fertility and mortality are kept constant) have been prepared. The constant-mortality variant and the zero-migration variant both have the same fertility assumption (i.e., 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 various population quantities. Similarly, the zero-migration variant differs from the medium variant only with respect to the underlying assumption regarding international migration. Therefore, the zero-migration variant allows an assessment of the effect that non-zero net migration has on various population quantities. Lastly, the “no change” variant has the same international migration as the medium variant but differs from the latter by having constant fertility and mortality. When compared to the medium variant, therefore, its results shed light on the effects that changing fertility and mortality have on the results obtained.

TABLE V.3. PROJECTION VARIANTS IN TERMS OF ASSUMPTIONS FOR FERTILITY, MORTALITY AND INTERNATIONAL MIGRATION

Projection variant	Assumptions		
	Fertility	Mortality	International migration
Low fertility	Low	Normal	Normal
Medium fertility	Medium	Normal	Normal
High fertility	High	Normal	Normal
Constant-fertility	Constant as of 2005-2010	Normal	Normal
Instant-replacement-fertility	Instant-replacement as of 2010-2015	Normal	Normal
Constant-mortality	Medium	Constant as of 2005-2010	Normal
No change	Constant as of 2005-2010	Constant as of 2005-2010	Normal
Zero-migration	Medium	Normal	Zero as of 2010-2015

## E. METHODOLOGICAL CHANGES INTRODUCED IN THE 2012 REVISION

The following changes and adjustments were made in the *2012 Revision* in relation to procedures followed in the *2010 Revision*.

- The *2012 Revision* uses the same stochastic model for fertility projection as used in the 2010 revision with only one modification: the AR1 model used for low fertility countries is estimated using a Bayesian hierarchical model, and future long-term fertility levels are more data-driven and country-specific as described above in section A.1 of Chapter V, and the medium fertility variant corresponds to the median of 60,000 projected country trajectories.
- The *2012 Revision* uses two new stochastic models to project life expectancy at birth for all countries not significantly affected by the HIV/AIDS epidemic: the first model uses for female a Bayesian hierarchical approach modelling the rate of mortality improvement by level of life expectancy at birth, and a second model is used for male to project the gender gap conditionally on female mortality level as described above in section B.1 of Chapter V

The medium mortality variant corresponds to the median of 100,000 projected country trajectories by sex.

- The *2012 Revision* uses new age-specific patterns of mortality improvement by level of mortality to project mortality patterns for countries with reliable recent mortality data by age and sex.
- In the *2012 Revision*, the impact of HIV/AIDS on mortality is modelled explicitly for 39 countries where HIV prevalence among persons aged 15 to 49 was ever equal to or greater than two per cent between 1980 and 2011 in the general population.



## **VI. SUMMARY TABLES**



TABLE S.1. TOTAL POPULATION BY SEX IN 2013 AND SEX RATIO BY COUNTRY IN 2013 (MEDIUM VARIANT)

Country or area	Population (thousands)			Sex ratio (males per 100 females)
	Total	Male	Female	
<b>World .....</b>	<b>7 162 119</b>	<b>3 610 470</b>	<b>3 551 649</b>	<b>102</b>
Afghanistan .....	30 552	15 491	15 061	103
Albania .....	3 173	1 590	1 583	100
Algeria .....	39 208	19 822	19 386	102
American Samoa .....	55	...	...	...
Andorra .....	79	...	...	...
Angola .....	21 472	10 646	10 826	98
Anguilla .....	14	...	...	...
Antigua and Barbuda .....	90	43	47	91
Argentina .....	41 446	20 283	21 163	96
Armenia .....	2 977	1 531	1 446	106
Aruba .....	103	49	54	91
Australia .....	23 343	11 617	11 726	99
Austria .....	8 495	4 148	4 347	95
Azerbaijan .....	9 413	4 678	4 736	99
Bahamas .....	377	185	193	96
Bahrain .....	1 332	828	504	164
Bangladesh .....	156 595	79 240	77 355	102
Barbados .....	285	142	143	100
Belarus .....	9 357	4 343	5 014	87
Belgium .....	11 104	5 450	5 655	96
Belize .....	332	166	166	100
Benin .....	10 323	5 145	5 179	99
Bermuda .....	65	...	...	...
Bhutan .....	754	405	349	116
Bolivia (Plurinational State of) .....	10 671	5 329	5 342	100
Bosnia and Herzegovina .....	3 829	1 870	1 960	95
Botswana .....	2 021	1 017	1 005	101
Brazil .....	200 362	98 526	101 836	97
British Virgin Islands .....	28	...	...	...
Brunei Darussalam .....	418	212	206	103
Bulgaria .....	7 223	3 510	3 713	95
Burkina Faso .....	16 935	8 419	8 516	99
Burundi .....	10 163	5 020	5 143	98
Cambodia .....	15 135	7 386	7 749	95
Cameroon .....	22 254	11 125	11 129	100
Canada .....	35 182	17 459	17 723	99
Cape Verde .....	499	249	250	99
Caribbean Netherlands .....	19	...	...	...
Cayman Islands .....	58	...	...	...
Central African Republic .....	4 616	2 272	2 345	97
Chad .....	12 825	6 423	6 403	100
Channel Islands .....	162	80	82	98
Chile .....	17 620	8 715	8 905	98
China .....	1 385 567	718 106	667 460	108
China, Hong Kong SAR .....	7 204	3 369	3 834	88

TABLE S.1. (continued)

Country or area	Population (thousands)			Sex ratio (males per 100 females)
	Total	Male	Female	
China, Macao SAR.....	566	272	294	93
Colombia.....	48 321	23 759	24 563	97
Comoros.....	735	370	365	102
Congo.....	4 448	2 223	2 224	100
Cook Islands.....	21	...	...	...
Costa Rica.....	4 872	2 474	2 398	103
Côte d'Ivoire.....	20 316	10 355	9 961	104
Croatia.....	4 290	2 070	2 220	93
Cuba.....	11 266	5 662	5 603	101
Curaçao.....	159	72	87	83
Cyprus.....	1 141	583	558	104
Czech Republic.....	10 702	5 268	5 434	97
Dem. People's Rep. of Korea.....	24 895	12 168	12 727	96
Dem. Republic of the Congo.....	67 514	33 537	33 977	99
Denmark.....	5 619	2 788	2 831	99
Djibouti.....	873	438	434	101
Dominica.....	72	...	...	...
Dominican Republic.....	10 404	5 204	5 200	100
Ecuador.....	15 738	7 868	7 870	100
Egypt.....	82 056	41 206	40 850	101
El Salvador.....	6 340	3 005	3 336	90
Equatorial Guinea.....	757	388	369	105
Eritrea.....	6 333	3 160	3 173	100
Estonia.....	1 287	597	690	87
Ethiopia.....	94 101	47 073	47 027	100
Faeroe Islands.....	49	...	...	...
Falkland Islands (Malvinas).....	3	...	...	...
Fiji.....	881	449	432	104
Finland.....	5 426	2 666	2 760	97
France.....	64 291	31 127	33 165	94
French Guiana.....	249	125	125	100
French Polynesia.....	277	141	135	105
Gabon.....	1 672	840	832	101
Gambia.....	1 849	915	935	98
Georgia.....	4 341	2 046	2 295	89
Germany.....	82 727	40 602	42 125	96
Ghana.....	25 905	12 843	13 061	98
Gibraltar.....	29	...	...	...
Greece.....	11 128	5 491	5 637	97
Greenland.....	57	...	...	...
Grenada.....	106	53	53	100
Guadeloupe.....	466	219	246	89
Guam.....	165	84	81	103
Guatemala.....	15 468	7 544	7 924	95
Guinea.....	11 745	5 883	5 863	100
Guinea-Bissau.....	1 704	847	857	99
Guyana.....	800	406	393	103
Haiti.....	10 317	5 098	5 220	98
Holy See.....	1	...	...	...

TABLE S.1. (continued)

Country or area	Population (thousands)			Sex ratio (males per 100 females)
	Total	Male	Female	
Honduras .....	8 098	4 051	4 047	100
Hungary .....	9 955	4 731	5 224	91
Iceland .....	330	166	164	101
India .....	1 252 140	647 437	604 703	107
Indonesia .....	249 866	125 701	124 165	101
Iran (Islamic Republic of) .....	77 447	38 958	38 490	101
Iraq .....	33 765	17 069	16 696	102
Ireland .....	4 627	2 297	2 330	99
Isle of Man .....	86	...	...	...
Israel .....	7 733	3 828	3 905	98
Italy .....	60 990	29 630	31 360	94
Jamaica .....	2 784	1 371	1 413	97
Japan .....	127 144	61 858	65 286	95
Jordan .....	7 274	3 712	3 562	104
Kazakhstan .....	16 441	7 916	8 525	93
Kenya .....	44 354	22 129	22 225	100
Kiribati .....	102	51	51	99
Kuwait .....	3 369	2 014	1 355	149
Kyrgyzstan .....	5 548	2 736	2 811	97
Lao People's Dem. Republic .....	6 770	3 370	3 400	99
Latvia .....	2 050	937	1 113	84
Lebanon .....	4 822	2 450	2 372	103
Lesotho .....	2 074	1 024	1 051	97
Liberia .....	4 294	2 162	2 132	101
Libya .....	6 202	3 101	3 100	100
Liechtenstein .....	37	...	...	...
Lithuania .....	3 017	1 389	1 628	85
Luxembourg .....	530	264	266	99
Madagascar .....	22 925	11 425	11 500	99
Malawi .....	16 363	8 201	8 162	100
Malaysia .....	29 717	14 422	15 295	94
Maldives .....	345	174	171	101
Mali .....	15 302	7 711	7 590	102
Malta .....	429	214	215	100
Marshall Islands .....	53	...	...	...
Martinique .....	404	186	218	85
Mauritania .....	3 890	1 959	1 931	101
Mauritius .....	1 244	614	630	97
Mayotte .....	222	111	111	100
Mexico .....	122 332	59 269	63 063	94
Micronesia (Fed. States of) .....	104	53	51	105
Monaco .....	38	...	...	...
Mongolia .....	2 839	1 407	1 433	98
Montenegro .....	621	307	314	98
Montserrat .....	5	...	...	...
Morocco .....	33 008	16 292	16 716	97
Mozambique .....	25 834	12 630	13 203	96
Myanmar .....	53 259	25 850	27 409	94
Namibia .....	2 303	1 118	1 185	94

TABLE S.1. (continued)

Country or area	Population (thousands)			Sex ratio (males per 100 females)
	Total	Male	Female	
Nauru.....	10	...	...	...
Nepal.....	27 797	13 456	14 342	94
Netherlands.....	16 759	8 309	8 450	98
New Caledonia.....	256	130	127	102
New Zealand.....	4 506	2 213	2 293	97
Nicaragua.....	6 080	3 007	3 073	98
Niger.....	17 831	8 986	8 846	102
Nigeria.....	173 615	88 362	85 254	104
Niue.....	1	...	...	...
Northern Mariana Islands.....	54	...	...	...
Norway.....	5 043	2 525	2 518	100
Oman.....	3 632	2 309	1 323	175
Pakistan.....	182 143	93 573	88 570	106
Palau.....	21	...	...	...
Panama.....	3 864	1 951	1 913	102
Papua New Guinea.....	7 321	3 735	3 586	104
Paraguay.....	6 802	3 429	3 374	102
Peru.....	30 376	15 222	15 153	100
Philippines.....	98 394	49 288	49 105	100
Poland.....	38 217	18 449	19 768	93
Portugal.....	10 608	5 139	5 469	94
Puerto Rico.....	3 688	1 774	1 915	93
Qatar.....	2 169	1 660	509	326
Republic of Korea.....	49 263	24 495	24 768	99
Republic of Moldova.....	3 487	1 653	1 835	90
Réunion.....	875	429	446	96
Romania.....	21 699	10 569	11 130	95
Russian Federation.....	142 834	65 891	76 943	86
Rwanda.....	11 777	5 750	6 026	95
Saint Helena.....	4	...	...	...
Saint Kitts and Nevis.....	54	...	...	...
Saint Lucia.....	182	89	93	96
Saint Pierre and Miquelon.....	6	...	...	...
St. Vincent and the Grenadines.....	109	55	54	102
Samoa.....	190	98	92	106
San Marino.....	31	...	...	...
Sao Tome and Principe.....	193	95	98	98
Saudi Arabia.....	28 829	16 567	12 262	135
Senegal.....	14 133	6 932	7 202	96
Serbia.....	9 511	4 648	4 862	96
Seychelles.....	93	47	46	104
Sierra Leone.....	6 092	3 025	3 067	99
Singapore.....	5 412	2 671	2 741	97
Sint Maarten (Dutch part).....	45	...	...	...
Slovakia.....	5 450	2 650	2 800	95
Slovenia.....	2 072	1 030	1 042	99
Solomon Islands.....	561	285	276	103
Somalia.....	10 496	5 221	5 275	99
South Africa.....	52 776	25 616	27 160	94

TABLE S.1. (continued)

Country or area	Population (thousands)			Sex ratio (males per 100 females)
	Total	Male	Female	
South Sudan .....	11 296	5 651	5 645	100
Spain .....	46 927	23 187	23 740	98
Sri Lanka .....	21 273	10 395	10 878	96
State of Palestine .....	4 326	2 196	2 131	103
Sudan .....	37 964	19 046	18 918	101
Suriname .....	539	270	269	100
Swaziland .....	1 250	616	633	97
Sweden .....	9 571	4 770	4 801	99
Switzerland .....	8 078	3 983	4 095	97
Syrian Arab Republic .....	21 898	11 155	10 743	104
Tajikistan .....	8 208	4 120	4 088	101
TFYR Macedonia .....	2 107	1 055	1 052	100
Thailand .....	67 011	32 817	34 193	96
Timor-Leste .....	1 133	576	557	103
Togo .....	6 817	3 362	3 455	97
Tokelau .....	1	...	...	...
Tonga .....	105	53	53	100
Trinidad and Tobago .....	1 341	663	678	98
Tunisia .....	10 997	5 451	5 545	98
Turkey .....	74 933	36 797	38 136	96
Turkmenistan .....	5 240	2 577	2 663	97
Turks and Caicos Islands .....	33	...	...	...
Tuvalu .....	10	...	...	...
Uganda .....	37 579	18 840	18 739	101
Ukraine .....	45 239	20 846	24 393	85
United Arab Emirates .....	9 346	6 549	2 797	234
United Kingdom .....	63 136	31 112	32 024	97
United Republic of Tanzania .....	49 253	24 629	24 624	100
United States of America .....	320 051	157 491	162 560	97
United States Virgin Islands .....	107	51	56	91
Uruguay .....	3 407	1 646	1 761	93
Uzbekistan .....	28 934	14 391	14 543	99
Vanuatu .....	253	128	125	103
Venezuela (Bolivarian Republic of) ....	30 405	15 245	15 160	101
Viet Nam .....	91 680	45 305	46 375	98
Wallis and Futuna Islands .....	13	...	...	...
Western Sahara .....	567	298	269	111
Yemen .....	24 407	12 304	12 103	102
Zambia .....	14 539	7 252	7 287	100
Zimbabwe .....	14 150	6 986	7 164	98
Other non-specified areas .....	23 330	11 694	11 635	101

Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2013). *World Population Prospects: The 2012 Revision*. New York: United Nations.

NOTE: Estimates by sex for countries or areas with less than 90,000 persons are not shown. They are included in the totals for the world by sex.

TABLE S.2. TOTAL POPULATION BY COUNTRY, 1950, 2013, 2025, 2050 AND 2100 (MEDIUM VARIANT)

Country or area	Population (thousands)				
	1950	2013	2025	2050	2100
<b>World.....</b>	<b>2 525 779</b>	<b>7 162 119</b>	<b>8 083 413</b>	<b>9 550 945</b>	<b>10 853 849</b>
Afghanistan .....	7 451	30 552	39 571	56 551	59 249
Albania .....	1 214	3 173	3 283	3 094	2 217
Algeria .....	8 872	39 208	46 480	54 522	54 887
American Samoa .....	19	55	59	62	56
Andorra .....	6	79	86	95	91
Angola .....	4 148	21 472	30 446	54 324	97 337
Anguilla .....	5	14	16	15	12
Antigua and Barbuda .....	46	90	101	115	114
Argentina .....	17 150	41 446	45 423	51 024	50 436
Armenia .....	1 354	2 977	2 989	2 782	2 023
Aruba .....	38	103	107	103	86
Australia .....	8 177	23 343	26 920	33 735	41 497
Austria .....	6 938	8 495	8 871	9 354	9 587
Azerbaijan .....	2 896	9 413	10 309	10 492	8 433
Bahamas .....	79	377	430	494	504
Bahrain .....	116	1 332	1 571	1 835	1 520
Bangladesh .....	37 895	156 595	177 885	201 948	182 238
Barbados .....	211	285	301	314	316
Belarus .....	7 745	9 357	8 773	7 359	5 601
Belgium .....	8 628	11 104	11 526	12 055	12 594
Belize .....	69	332	424	590	693
Benin .....	2 255	10 323	13 891	22 137	32 944
Bermuda .....	37	65	66	64	65
Bhutan .....	177	754	863	980	870
Bolivia (Plurinational State of) .....	2 714	10 671	12 801	16 621	19 510
Bosnia and Herzegovina .....	2 661	3 829	3 751	3 332	2 374
Botswana .....	413	2 021	2 245	2 780	3 025
Brazil .....	53 975	200 362	217 519	231 120	194 533
British Virgin Islands .....	7	28	31	34	33
Brunei Darussalam .....	48	418	478	546	501
Bulgaria .....	7 251	7 223	6 527	5 077	3 533
Burkina Faso .....	4 284	16 935	23 428	40 932	75 274
Burundi .....	2 309	10 163	14 429	26 691	56 285
Cambodia .....	4 433	15 135	18 120	22 569	23 587
Cameroon .....	4 466	22 254	29 628	48 599	82 393
Canada .....	13 737	35 182	39 185	45 228	50 882
Cape Verde .....	178	499	555	636	552
Caribbean Netherlands .....	7	19	22	23	22
Cayman Islands .....	6	58	65	67	61
Central African Republic .....	1 327	4 616	5 795	8 491	11 851
Chad .....	2 502	12 825	18 185	33 516	63 286
Channel Islands .....	102	162	171	179	165
Chile .....	6 082	17 620	19 285	20 839	18 843
China .....	543 776	1 385 567	1 448 984	1 384 977	1 085 631
China, Hong Kong SAR .....	1 974	7 204	7 743	8 004	6 876
China, Macao SAR .....	196	566	667	797	818
Colombia .....	12 000	48 321	54 955	62 942	60 223
Comoros .....	156	735	954	1 508	2 538
Congo .....	808	4 448	5 970	10 577	21 322



TABLE S.2. (continued)

Country or area	Population (thousands)				
	1950	2013	2025	2050	2100
Cook Islands .....	15	21	22	24	22
Costa Rica.....	966	4 872	5 549	6 189	5 316
Côte d'Ivoire .....	2 630	20 316	26 414	42 339	76 180
Croatia .....	3 850	4 290	4 102	3 606	2 768
Cuba .....	5 920	11 266	11 019	9 392	5 458
Curaçao.....	100	159	176	179	159
Cyprus .....	494	1 141	1 266	1 356	1 156
Czech Republic.....	8 876	10 702	11 019	11 218	11 086
Dem. People's Rep. of Korea.....	10 549	24 895	26 306	27 076	25 000
Dem. Republic of the Congo .....	12 184	67 514	92 117	155 291	262 134
Denmark .....	4 268	5 619	5 894	6 361	6 992
Djibouti.....	62	873	1 023	1 244	1 300
Dominica .....	51	72	76	76	64
Dominican Republic.....	2 380	10 404	11 759	13 320	12 414
Ecuador.....	3 452	15 738	18 563	23 061	24 410
Egypt .....	21 514	82 056	96 989	121 798	135 200
El Salvador .....	2 200	6 340	6 759	6 912	5 542
Equatorial Guinea.....	226	757	1 023	1 623	2 419
Eritrea .....	1 141	6 333	8 737	14 314	21 761
Estonia .....	1 101	1 287	1 238	1 121	959
Ethiopia .....	18 128	94 101	124 537	187 573	243 416
Faeroe Islands.....	32	49	51	53	53
Falkland Islands (Malvinas) .....	2	3	3	3	3
Fiji .....	289	881	931	918	790
Finland.....	4 008	5 426	5 607	5 693	5 762
France .....	41 832	64 291	67 967	73 212	79 059
French Guiana .....	25	249	328	495	674
French Polynesia .....	60	277	308	337	306
Gabon .....	473	1 672	2 165	3 302	4 884
Gambia .....	271	1 849	2 660	4 866	8 423
Georgia.....	3 527	4 341	4 080	3 563	3 026
Germany.....	70 094	82 727	80 869	72 566	56 902
Ghana .....	4 981	25 905	32 509	45 670	57 210
Gibraltar.....	20	29	29	27	23
Greece.....	7 566	11 128	11 035	10 668	9 365
Greenland .....	23	57	56	50	42
Grenada .....	77	106	109	95	77
Guadeloupe.....	210	466	489	493	448
Guam .....	60	165	191	227	242
Guatemala.....	3 146	15 468	20 394	31 426	46 462
Guinea .....	3 094	11 745	15 590	24 466	35 768
Guinea-Bissau.....	518	1 704	2 233	3 504	5 628
Guyana.....	407	800	841	815	604
Haiti.....	3 221	10 317	11 935	14 353	14 799
Holy See .....	1	1	1	1	1
Honduras .....	1 487	8 098	10 035	13 484	15 627
Hungary .....	9 338	9 955	9 672	8 954	7 661
Iceland .....	143	330	370	415	413
India.....	376 325	1 252 140	1 418 744	1 620 051	1 546 833
Indonesia .....	72 592	249 866	282 011	321 377	315 296
Iran (Islamic Republic of).....	17 119	77 447	88 064	100 598	94 324
Iraq .....	5 719	33 765	45 892	71 336	106 319

TABLE S.2. (continued)

Country or area	Population (thousands)				
	1950	2013	2025	2050	2100
Ireland.....	2 913	4 627	5 167	5 994	6 596
Isle of Man.....	55	86	92	99	98
Israel.....	1 258	7 733	9 071	11 843	15 011
Italy.....	46 367	60 990	61 335	60 015	54 598
Jamaica.....	1 403	2 784	2 926	2 808	2 052
Japan.....	82 199	127 144	123 256	108 329	84 471
Jordan.....	449	7 274	8 742	11 510	12 924
Kazakhstan.....	6 703	16 441	18 116	20 186	20 938
Kenya.....	6 077	44 354	59 386	97 173	160 423
Kiribati.....	26	102	123	156	185
Kuwait.....	152	3 369	4 432	6 342	7 960
Kyrgyzstan.....	1 740	5 548	6 557	7 976	8 924
Lao People's Dem. Republic.....	1 683	6 770	8 253	10 579	11 153
Latvia.....	1 949	2 050	1 912	1 674	1 459
Lebanon.....	1 335	4 822	5 043	5 316	4 114
Lesotho.....	734	2 074	2 325	2 818	3 183
Liberia.....	930	4 294	5 716	9 392	15 905
Libya.....	1 113	6 202	7 145	8 350	7 639
Liechtenstein.....	14	37	40	44	47
Lithuania.....	2 567	3 017	2 882	2 557	2 105
Luxembourg.....	296	530	608	706	716
Madagascar.....	4 084	22 925	31 741	55 498	105 128
Malawi.....	2 881	16 363	22 776	41 203	84 986
Malaysia.....	6 110	29 717	34 956	42 113	42 400
Maldives.....	74	345	414	504	474
Mali.....	4 638	15 302	22 319	45 168	100 751
Malta.....	312	429	438	417	336
Marshall Islands.....	13	53	56	67	80
Martinique.....	222	404	414	400	335
Mauritania.....	660	3 890	5 097	7 921	12 397
Mauritius.....	493	1 244	1 283	1 231	983
Mayotte.....	15	222	296	466	656
Mexico.....	28 296	122 332	138 195	156 102	139 795
Micronesia (Fed. States of).....	32	104	115	130	127
Monaco.....	20	38	42	53	70
Mongolia.....	780	2 839	3 270	3 753	3 937
Montenegro.....	395	621	615	557	422
Montserrat.....	14	5	5	6	6
Morocco.....	8 986	33 008	37 723	42 884	42 726
Mozambique.....	6 442	25 834	34 459	59 929	112 018
Myanmar.....	17 527	53 259	57 650	58 645	47 413
Namibia.....	485	2 303	2 830	3 744	4 263
Nauru.....	3	10	11	11	10
Nepal.....	8 140	27 797	31 493	36 479	34 410
Netherlands.....	10 027	16 759	17 180	16 919	15 964
New Caledonia.....	65	256	296	364	403
New Zealand.....	1 908	4 506	5 021	5 778	6 187
Nicaragua.....	1 295	6 080	7 038	8 355	7 902
Niger.....	2 560	17 831	28 477	69 410	203 781
Nigeria.....	37 860	173 615	239 874	440 355	913 834
Niue.....	5	1	1	1	1
Northern Mariana Islands.....	7	54	56	52	32

TABLE S.2. (continued)

Country or area	Population (thousands)				
	1950	2013	2025	2050	2100
Norway .....	3 265	5 043	5 627	6 556	7 609
Oman .....	456	3 632	4 770	5 065	3 813
Pakistan .....	37 542	182 143	218 124	271 082	263 320
Palau .....	7	21	24	28	29
Panama .....	860	3 864	4 597	5 774	6 277
Papua New Guinea .....	1 708	7 321	9 229	13 092	16 991
Paraguay .....	1 473	6 802	8 165	10 445	11 841
Peru .....	7 632	30 376	34 877	41 084	39 773
Philippines .....	18 580	98 394	119 219	157 118	187 702
Poland .....	24 824	38 217	37 924	34 079	26 085
Portugal .....	8 417	10 608	10 514	9 843	7 457
Puerto Rico .....	2 218	3 688	3 693	3 611	2 853
Qatar .....	25	2 169	2 662	2 985	1 987
Republic of Korea .....	19 211	49 263	51 602	51 034	40 548
Republic of Moldova .....	2 341	3 487	3 206	2 484	1 702
Réunion .....	248	875	983	1 125	1 150
Romania .....	16 236	21 699	20 771	17 809	12 603
Russian Federation .....	102 799	142 834	136 967	120 896	101 882
Rwanda .....	2 186	11 777	15 914	25 378	36 217
Saint Helena .....	5	4	4	5	4
Saint Kitts and Nevis .....	46	54	61	67	64
Saint Lucia .....	83	182	197	207	171
Saint Pierre and Miquelon .....	5	6	6	6	6
St. Vincent and the Grenadines .....	67	109	110	111	96
Samoa .....	82	190	205	242	363
San Marino .....	13	31	33	33	29
Sao Tome and Principe .....	60	193	252	388	568
Saudi Arabia .....	3 121	28 829	34 207	40 388	37 195
Senegal .....	2 477	14 133	19 415	32 933	58 180
Serbia .....	6 732	9 511	8 891	7 074	4 054
Seychelles .....	36	93	97	100	87
Sierra Leone .....	1 944	6 092	7 470	10 296	13 890
Singapore .....	1 022	5 412	6 334	7 065	6 040
Sint Maarten (Dutch part) .....	1	45	54	61	55
Slovakia .....	3 437	5 450	5 451	4 990	3 892
Slovenia .....	1 473	2 072	2 094	2 023	1 803
Solomon Islands .....	90	561	702	1 010	1 433
Somalia .....	2 264	10 496	14 743	27 076	53 966
South Africa .....	13 683	52 776	56 666	63 405	64 135
South Sudan .....	2 583	11 296	15 571	24 760	39 267
Spain .....	28 070	46 927	48 082	48 224	41 662
Sri Lanka .....	8 076	21 273	22 879	23 834	21 729
State of Palestine .....	932	4 326	5 769	8 906	12 866
Sudan .....	5 734	37 964	49 676	77 138	116 141
Suriname .....	215	539	588	621	571
Swaziland .....	273	1 250	1 443	1 815	2 156
Sweden .....	7 010	9 571	10 378	11 934	14 468
Switzerland .....	4 668	8 078	9 067	10 977	12 822
Syrian Arab Republic .....	3 413	21 898	27 865	36 706	40 114
Tajikistan .....	1 532	8 208	10 539	15 093	21 313
TFYR Macedonia .....	1 254	2 107	2 094	1 881	1 327
Thailand .....	20 607	67 011	67 900	61 740	40 542

TABLE S.2. (continued)

Country or area	Population (thousands)				
	1950	2013	2025	2050	2100
Timor-Leste .....	433	1 133	1 418	2 087	3 265
Togo .....	1 395	6 817	9 019	14 521	24 659
Tokelau .....	2	1	1	1	1
Tonga .....	47	105	116	140	203
Trinidad and Tobago .....	646	1 341	1 333	1 155	790
Tunisia .....	3 099	10 997	12 231	13 192	11 556
Turkey .....	21 238	74 933	83 713	94 606	86 465
Turkmenistan .....	1 211	5 240	5 951	6 570	5 766
Turks and Caicos Islands .....	5	33	39	43	37
Tuvalu .....	5	10	10	12	17
Uganda .....	5 158	37 579	54 832	104 078	204 596
Ukraine .....	37 298	45 239	41 560	33 658	24 629
United Arab Emirates .....	70	9 346	11 479	15 479	13 759
United Kingdom .....	50 616	63 136	67 210	73 131	77 175
United Republic of Tanzania .....	7 650	49 253	69 329	129 417	275 624
United States of America .....	157 813	320 051	350 626	400 853	462 070
United States Virgin Islands .....	27	107	106	103	107
Uruguay .....	2 239	3 407	3 536	3 641	3 292
Uzbekistan .....	6 314	28 934	32 991	36 330	30 791
Vanuatu .....	48	253	322	473	660
Venezuela (Bolivarian Republic of) .....	5 094	30 405	35 383	42 376	42 772
Viet Nam .....	24 949	91 680	99 811	103 697	80 122
Wallis and Futuna Islands .....	7	13	13	13	12
Western Sahara .....	14	567	737	844	783
Yemen .....	4 661	24 407	31 279	42 497	42 181
Zambia .....	2 372	14 539	21 388	44 206	124 302
Zimbabwe .....	2 747	14 150	18 748	26 254	32 608
Other non-specified areas .....	7 562	23 330	23 609	21 371	14 166

Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2013).  
*World Population Prospects: The 2012 Revision*. New York: United Nations.

TABLE S.3. COUNTRIES ACCOUNTING FOR ABOUT 75 PER CENT OF THE WORLD POPULATION ORDERED BY POPULATION SIZE, 1950, 2013, 2050 AND 2100 (MEDIUM VARIANT)

<i>Rank</i>	<i>Country or area</i>	<i>Population in 1950 (millions)</i>	<i>Cumulated percentage</i>	<i>Rank</i>	<i>Country or area</i>	<i>Population in 2013 (millions)</i>	<i>Cumulated percentage</i>
1.	China	544	21.5	1.	China	1 386	19.3
2.	India	376	36.4	2.	India	1 252	36.8
3.	United States of America	158	42.7	3.	United States of America	320	41.3
4.	Russian Federation	103	46.7	4.	Indonesia	250	44.8
5.	Japan	82	50.0	5.	Brazil	200	47.6
6.	Indonesia	73	52.9	6.	Pakistan	182	50.1
7.	Germany	70	55.7	7.	Nigeria	174	52.6
8.	Brazil	54	57.8	8.	Bangladesh	157	54.7
9.	United Kingdom	51	59.8	9.	Russian Federation	143	56.7
10.	Italy	46	61.6	10.	Japan	127	58.5
11.	France	42	63.3	11.	Mexico	122	60.2
12.	Bangladesh	38	64.8	12.	Philippines	98	61.6
13.	Nigeria	38	66.3	13.	Ethiopia	94	62.9
14.	Pakistan	38	67.8	14.	Viet Nam	92	64.2
15.	Ukraine	37	69.2	15.	Germany	83	65.3
16.	Mexico	28	70.4	16.	Egypt	82	66.5
17.	Spain	28	71.5	17.	Iran (Islamic Republic of)	77	67.6
18.	Viet Nam	25	72.5	18.	Turkey	75	68.6
19.	Poland	25	73.4	19.	Dem. Rep. of the Congo	68	69.6
20.	Egypt	22	74.3	20.	Thailand	67	70.5
21.	Turkey	21	75.1	21.	France	64	71.4
				22.	United Kingdom	63	72.3
				23.	Italy	61	73.1
				24.	Myanmar	53	73.9
				25.	South Africa	53	74.6
				26.	Republic of Korea	49	75.3

*Source:* Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2013). *World Population Prospects: The 2012 Revision*. New York: United Nations.

TABLE S.3. (continued)

<i>Rank</i>	<i>Country or area</i>	<i>Population in 2050 (millions)</i>	<i>Cumulated percentage</i>	<i>Rank</i>	<i>Country or area</i>	<i>Population in 2100 (millions)</i>	<i>Cumulated percentage</i>
1.	India	1 620	17.0	1.	India	1 547	14.3
2.	China	1 385	31.5	2.	China	1 086	24.3
3.	Nigeria	440	36.1	3.	Nigeria	914	32.7
4.	United States of America	401	40.3	4.	United States of America	462	36.9
5.	Indonesia	321	43.6	5.	Indonesia	315	39.8
6.	Pakistan	271	46.5	6.	United Rep. of Tanzania	276	42.4
7.	Brazil	231	48.9	7.	Pakistan	263	44.8
8.	Bangladesh	202	51.0	8.	Dem. Rep. of the Congo	262	47.2
9.	Ethiopia	188	53.0	9.	Ethiopia	243	49.5
10.	Philippines	157	54.6	10.	Uganda	205	51.3
11.	Mexico	156	56.3	11.	Niger	204	53.2
12.	Dem. Rep. of the Congo	155	57.9	12.	Brazil	195	55.0
13.	United Rep. of Tanzania	129	59.2	13.	Philippines	188	56.7
14.	Egypt	122	60.5	14.	Bangladesh	182	58.4
15.	Russian Federation	121	61.8	15.	Kenya	160	59.9
16.	Japan	108	62.9	16.	Mexico	140	61.2
17.	Uganda	104	64.0	17.	Egypt	135	62.4
18.	Viet Nam	104	65.1	18.	Zambia	124	63.6
19.	Iran (Islamic Republic of)	101	66.1	19.	Sudan	116	64.6
20.	Kenya	97	67.2	20.	Mozambique	112	65.7
21.	Turkey	95	68.1	21.	Iraq	106	66.7
22.	Sudan	77	69.0	22.	Madagascar	105	67.6
23.	France	73	69.7	23.	Russian Federation	102	68.6
24.	United Kingdom	73	70.5	24.	Mali	101	69.5
25.	Germany	73	71.2	25.	Angola	97	70.4
26.	Iraq	71	72.0	26.	Iran (Islamic Republic of)	94	71.3
27.	Niger	69	72.7	27.	Turkey	86	72.1
28.	South Africa	63	73.4	28.	Malawi	85	72.8
29.	Colombia	63	74.0	29.	Japan	84	73.6
30.	Thailand	62	74.7	30.	Cameroon	82	74.4
31.	Italy	60	75.3	31.	Viet Nam	80	75.1

Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2013). *World Population Prospects: The 2012 Revision*. New York: United Nations.

United Nations Department of Economic and Social Affairs/Population Division  
*World Population Prospects: The 2012 Revision, Highlights and Advance Tables*

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TABLE S.5. COUNTRIES OR AREAS WHOSE POPULATION IS PROJECTED TO DECREASE  
BETWEEN 2013 AND 2050 (MEDIUM VARIANT)

BETWEEN 2013 AND 2050 (MEDIUM VARIANT)

Rank	Country or area	Population (thousands)		Difference	
		2013	2050	Absolute	Percentage
More developed regions					
1.	Bulgaria	7 223	5 077	-2 146	-29.7
2.	Republic of Moldova	3 487	2 484	-1 004	-28.8
3.	Serbia	9 511	7 074	-2 437	-25.6
4.	Ukraine	45 239	33 658	-11 581	-25.6
5.	Belarus	9 357	7 359	-1 997	-21.3
6.	Latvia	2 050	1 674	- 376	-18.4
7.	Romania	21 699	17 809	-3 890	-17.9
8.	Croatia	4 290	3 606	- 684	-15.9
9.	Russian Federation	142 834	120 896	-21 938	-15.4
10.	Lithuania	3 017	2 557	- 460	-15.3
11.	Japan	127 144	108 329	-18 814	-14.8
12.	Bosnia and Herzegovina	3 829	3 332	- 498	-13.0
13.	Estonia	1 287	1 121	- 166	-12.9
14.	Germany	82 727	72 566	-10 160	-12.3
15.	Poland	38 217	34 079	-4 138	-10.8
16.	TFYR Macedonia	2 107	1 881	- 226	-10.7
17.	Montenegro	621	557	- 65	-10.4
18.	Hungary	9 955	8 954	-1 001	-10.1
19.	Slovakia	5 450	4 990	- 461	-8.5
20.	Portugal	10 608	9 843	- 765	-7.2
21.	Greece	11 128	10 668	- 460	-4.1
22.	Malta	429	417	- 13	-2.9
23.	Albania	3 173	3 094	- 79	-2.5
24.	Slovenia	2 072	2 023	- 49	-2.4
25.	Italy	60 990	60 015	- 975	-1.6
Less developed regions					
1.	Georgia	4 341	3 563	- 778	-17.9
2.	Cuba	11 266	9 392	-1 874	-16.6
3.	Trinidad and Tobago	1 341	1 155	- 186	-13.9
4.	Grenada	106	95	- 11	-10.2
5.	Other non-specified areas	23 330	21 371	-1 959	-8.4
6.	Thailand	67 011	61 740	-5 270	-7.9
7.	Armenia	2 977	2 782	- 195	-6.5
8.	United States Virgin Islands	107	103	- 4	-3.8
9.	Puerto Rico	3 688	3 611	- 77	-2.1
10.	Mauritius	1 244	1 231	- 13	-1.1
11.	Martinique	404	400	- 4	-0.9
12.	China	1 385 567	1 384 977	- 590	0.0

Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2013).  
World Population Prospects: The 2012 Revision. New York: United Nations.

NOTE: Only countries or areas with 90,000 persons or more in 2013 are considered.



TABLE S.6. PERCENTAGE DISTRIBUTION OF THE POPULATION IN SELECTED AGE GROUPS BY COUNTRY,  
2013, 2050 AND 2100 (MEDIUM VARIANT)

Country or area	2013				2050				2100			
	0-14	15-59	60+	80+	0-14	15-59	60+	80+	0-14	15-59	60+	80+
<b>World.....</b>	<b>26.2</b>	<b>62.0</b>	<b>11.7</b>	<b>1.7</b>	<b>21.3</b>	<b>57.5</b>	<b>21.2</b>	<b>4.1</b>	<b>17.9</b>	<b>54.6</b>	<b>27.5</b>	<b>7.6</b>
Afghanistan .....	46.6	49.5	3.9	0.2	24.1	67.4	8.5	0.6	15.8	56.7	27.5	4.4
Albania .....	20.6	64.1	15.3	2.1	13.8	55.3	30.9	8.3	14.3	46.0	39.7	14.6
Algeria .....	27.8	64.8	7.4	0.8	20.2	59.3	20.5	2.2	16.7	54.8	28.4	7.4
Angola .....	47.5	48.6	3.9	0.3	34.8	59.1	6.1	0.5	21.0	60.3	18.7	2.8
Antigua and Barbuda .....	25.0	64.9	10.2	1.7	17.7	57.5	24.8	6.7	15.3	50.1	34.6	11.7
Argentina .....	24.2	60.6	15.1	2.7	18.0	56.8	25.2	5.4	15.1	50.0	34.9	12.3
Armenia .....	20.2	65.4	14.4	2.6	15.1	53.4	31.5	6.7	15.0	50.3	34.7	12.4
Aruba .....	19.4	63.5	17.2	1.9	15.1	56.4	28.5	8.0	15.2	50.0	34.8	10.6
Australia .....	19.1	61.2	19.8	3.8	17.9	54.4	27.6	8.2	15.1	49.4	35.5	14.1
Austria .....	14.5	61.8	23.7	5.0	15.0	51.5	33.5	11.5	14.9	48.8	36.3	14.1
Azerbaijan .....	22.2	69.3	8.5	1.1	16.4	58.1	25.5	3.9	15.4	52.7	31.8	9.0
Bahamas .....	21.3	67.0	11.7	1.4	17.0	56.7	26.3	6.2	15.5	50.6	34.0	11.4
Bahrain .....	21.0	75.4	3.6	0.3	13.4	58.4	28.1	3.2	13.4	48.7	37.9	13.2
Bangladesh .....	30.0	63.0	7.0	0.8	17.3	60.4	22.3	3.7	14.3	48.4	37.3	14.0
Barbados .....	18.9	65.0	16.2	2.5	17.0	54.9	28.1	6.1	16.2	51.3	32.5	10.1
Belarus .....	15.3	65.2	19.5	3.4	16.0	53.7	30.3	5.4	16.2	54.3	29.5	8.2
Belgium .....	17.0	59.0	24.0	5.5	16.8	51.4	31.8	10.3	15.7	49.5	34.7	13.5
Belize .....	33.9	60.3	5.8	0.9	20.6	60.3	19.1	3.3	14.4	48.9	36.7	14.0
Benin .....	42.8	52.7	4.6	0.3	31.0	61.0	8.0	0.5	20.9	61.2	17.9	2.0
Bhutan .....	28.1	65.0	7.0	0.9	16.7	59.8	23.5	3.4	14.7	49.4	36.0	13.1
Bolivia (Plurinational State of) .....	34.9	57.8	7.4	0.8	24.5	61.6	13.8	1.7	17.3	56.2	26.5	5.8
Bosnia and Herzegovina .....	15.7	63.4	20.9	2.6	12.5	52.5	34.9	9.3	14.3	48.4	37.3	12.9
Botswana .....	33.5	60.6	5.9	0.6	22.2	65.2	12.6	1.0	16.4	55.2	28.4	5.6
Brazil .....	24.1	64.8	11.2	1.6	15.3	55.8	28.9	6.8	13.9	47.6	38.4	15.0
Brunei Darussalam .....	25.3	67.2	7.5	0.7	15.7	56.0	28.3	6.8	13.9	47.5	38.6	14.3
Bulgaria .....	13.7	59.9	26.4	4.4	14.8	48.7	36.5	7.6	15.8	51.9	32.2	10.2
Burkina Faso .....	45.5	50.6	3.9	0.3	34.0	59.2	6.8	0.4	21.7	60.2	18.0	2.6
Burundi .....	44.6	51.5	3.9	0.4	36.6	56.5	6.9	0.5	23.0	59.8	17.2	3.1
Cambodia .....	31.1	61.0	7.9	1.2	20.9	57.9	21.2	4.9	14.9	49.9	35.2	13.8
Cameroon .....	43.0	52.2	4.9	0.5	31.9	60.1	8.1	0.7	20.8	59.0	20.2	3.6
Canada .....	16.4	62.3	21.2	4.1	16.5	52.8	30.7	9.7	15.3	49.7	35.0	13.4
Cape Verde .....	29.5	63.2	7.2	1.4	16.4	59.5	24.1	4.3	13.8	47.9	38.3	13.8
Central African Republic .....	39.8	54.4	5.7	0.5	28.2	61.8	10.0	0.8	18.4	57.4	24.2	5.0
Chad .....	48.4	47.8	3.8	0.3	35.8	58.6	5.6	0.4	21.4	60.4	18.2	2.7
Channel Islands .....	14.9	62.3	22.7	4.4	13.7	51.9	34.4	10.4	13.4	47.7	38.9	14.8
Chile .....	21.1	64.7	14.2	2.3	15.4	53.4	31.3	9.3	14.2	47.1	38.7	16.2
China .....	18.0	68.1	13.9	1.6	14.7	52.5	32.8	6.5	15.2	50.5	34.3	11.0
China, Hong Kong SAR .....	11.7	68.2	20.1	3.9	11.4	46.5	42.1	15.5	12.9	44.9	42.3	19.6
China, Macao SAR .....	12.4	74.2	13.4	1.8	13.1	51.1	35.9	9.3	14.2	47.7	38.1	15.0
Colombia .....	27.7	62.8	9.5	1.2	18.0	58.3	23.8	5.2	14.7	49.6	35.6	12.4
Comoros .....	42.1	53.3	4.6	0.4	32.3	59.5	8.2	0.6	22.8	61.0	16.2	1.9
Congo .....	42.5	52.3	5.1	0.5	34.6	57.5	7.9	0.8	23.3	59.3	17.5	3.1
Costa Rica .....	23.5	66.0	10.5	1.6	14.8	55.0	30.2	7.5	13.6	46.4	40.0	16.7
Côte d'Ivoire .....	41.3	53.6	5.1	0.3	33.3	59.5	7.2	0.5	22.6	60.6	16.7	2.2
Croatia .....	14.9	60.0	25.1	4.5	13.8	50.2	36.0	9.8	14.4	48.7	36.9	13.6
Cuba .....	16.2	65.3	18.5	3.2	11.3	46.8	41.9	14.5	12.9	44.9	42.2	18.0
Curaçao .....	19.3	60.6	20.0	3.0	16.2	49.2	34.6	12.1	15.4	50.1	34.5	13.0
Cyprus .....	17.0	65.8	17.2	2.7	13.9	53.1	33.1	7.6	14.1	47.8	38.1	15.1
Czech Republic .....	14.9	61.5	23.7	3.9	16.0	50.8	33.2	7.5	15.7	50.7	33.6	12.1

TABLE S.6. (continued)

Country or area	2013				2050				2100			
	0-14	15-59	60+	80+	0-14	15-59	60+	80+	0-14	15-59	60+	80+
Dem. People's Rep. of Korea...	21.7	65.8	12.5	1.1	17.2	58.0	24.9	4.8	15.5	51.6	32.9	9.8
Dem. Republic of the Congo ...	45.0	50.5	4.5	0.3	34.2	59.2	6.6	0.5	21.7	61.0	17.3	2.2
Denmark .....	17.6	58.3	24.1	4.3	17.2	54.3	28.5	8.7	16.2	50.4	33.4	11.6
Djibouti .....	33.7	60.3	6.0	0.5	23.7	60.6	15.7	1.7	16.6	55.4	27.9	6.8
Dominican Republic .....	30.2	60.6	9.2	1.5	19.1	58.8	22.1	4.9	14.5	49.2	36.3	13.1
Ecuador .....	30.0	60.6	9.5	1.5	19.4	58.4	22.1	5.0	14.6	49.4	36.0	13.0
Egypt .....	31.1	60.2	8.7	0.9	21.8	60.3	17.9	2.3	15.6	52.7	31.7	9.1
El Salvador .....	30.0	60.3	9.8	1.7	18.8	59.5	21.6	4.6	14.8	49.3	35.9	13.3
Equatorial Guinea .....	38.9	56.5	4.7	0.4	28.6	61.7	9.7	1.2	18.2	57.3	24.5	5.1
Eritrea .....	43.2	53.1	3.7	0.2	29.6	61.2	9.2	0.7	18.0	57.2	24.8	5.3
Estonia .....	15.8	60.0	24.1	4.6	16.2	51.3	32.5	7.8	15.9	52.0	32.0	10.6
Ethiopia .....	42.7	52.1	5.2	0.5	26.0	63.7	10.3	1.1	16.5	54.7	28.8	7.1
Fiji .....	28.9	62.5	8.7	0.6	20.9	59.4	19.7	3.0	16.3	53.7	30.0	8.0
Finland .....	16.4	57.2	26.3	5.0	16.2	52.3	31.5	10.2	15.2	49.1	35.7	13.9
France .....	18.2	57.7	24.1	5.7	17.0	52.0	31.0	10.7	15.8	48.8	35.4	14.3
French Guiana .....	32.2	59.8	7.9	0.7	23.3	59.6	17.1	3.7	16.7	52.1	31.2	10.3
French Polynesia .....	22.6	66.6	10.8	1.2	16.1	55.9	28.0	6.8	14.2	48.1	37.8	14.4
Gabon .....	38.5	54.2	7.3	1.0	28.6	61.1	10.3	1.0	19.0	58.2	22.8	4.2
Gambia .....	45.9	50.3	3.7	0.3	35.7	58.4	5.9	0.4	21.5	62.1	16.3	1.6
Georgia .....	17.9	62.4	19.7	3.4	16.3	51.7	32.0	7.6	15.3	51.1	33.6	11.3
Germany .....	13.1	59.8	27.1	5.4	12.6	47.8	39.6	14.4	13.4	46.7	39.9	16.4
Ghana .....	38.5	56.2	5.4	0.5	27.5	62.0	10.5	0.7	19.4	60.4	20.2	2.6
Greece .....	14.7	59.7	25.7	5.7	14.2	47.9	37.9	11.7	14.4	48.2	37.5	15.2
Grenada .....	26.8	63.4	9.8	1.9	17.3	54.9	27.7	4.3	15.2	51.8	33.0	10.3
Guadeloupe .....	21.5	60.1	18.5	3.7	16.1	50.1	33.8	12.8	14.6	47.3	38.1	17.0
Guam .....	26.2	61.5	12.3	1.5	18.3	57.1	24.6	6.9	14.4	48.0	37.6	14.8
Guatemala .....	40.4	53.0	6.6	0.9	27.1	60.7	12.2	1.9	17.2	53.9	28.9	8.7
Guinea .....	42.3	52.6	5.1	0.3	30.9	61.3	7.8	0.5	20.8	61.2	18.0	2.0
Guinea-Bissau .....	41.5	53.2	5.3	0.3	32.1	60.0	7.9	0.4	22.4	61.0	16.6	1.8
Guyana .....	36.1	58.5	5.4	0.5	21.0	62.2	16.8	2.1	17.6	55.6	26.8	5.4
Haiti .....	35.0	58.2	6.8	0.6	23.2	62.4	14.4	1.4	17.0	56.1	26.9	5.6
Honduras .....	35.2	58.2	6.5	1.0	21.8	61.0	17.2	3.0	14.6	49.9	35.5	12.7
Hungary .....	14.7	61.4	23.9	4.3	14.8	52.5	32.7	6.9	15.2	51.1	33.7	10.8
Iceland .....	20.7	61.4	18.0	3.6	16.9	53.3	29.8	8.6	14.6	48.0	37.4	15.3
India .....	29.1	62.6	8.3	0.8	19.5	62.2	18.3	2.3	15.9	53.9	30.2	7.5
Indonesia .....	28.9	63.0	8.1	0.8	18.9	60.0	21.1	3.0	15.7	52.1	32.2	8.8
Iran (Islamic Republic of) .....	23.8	68.1	8.1	1.0	16.7	53.9	29.4	4.9	14.8	48.6	36.6	14.3
Iraq .....	40.1	54.9	5.0	0.5	28.2	61.1	10.8	1.0	18.8	57.5	23.7	4.8
Ireland .....	21.6	61.5	16.9	2.9	17.8	52.5	29.7	7.7	15.7	49.5	34.8	13.8
Israel .....	27.7	57.0	15.3	3.0	21.8	55.7	22.5	5.9	15.8	50.3	34.0	13.1
Italy .....	14.1	58.8	27.2	6.4	13.9	47.4	38.7	13.8	14.4	47.1	38.5	16.4
Jamaica .....	27.2	61.6	11.2	2.1	17.9	57.9	24.2	5.9	14.9	50.1	35.1	11.5
Japan .....	13.1	54.6	32.3	7.3	12.5	44.8	42.7	15.6	13.6	45.3	41.1	19.1
Jordan .....	34.0	60.6	5.3	0.4	22.3	60.2	17.4	2.2	15.3	52.2	32.4	9.9
Kazakhstan .....	25.8	64.0	10.2	1.1	22.0	59.4	18.6	2.4	17.5	56.9	25.7	5.8
Kenya .....	42.2	53.5	4.3	0.4	31.1	59.3	9.5	0.9	19.7	58.4	21.9	4.5
Kiribati .....	31.9	61.6	6.5	0.5	22.4	61.7	16.0	2.4	16.5	53.2	30.2	8.3
Kuwait .....	24.8	71.4	3.8	0.3	19.4	64.4	16.3	1.3	16.6	53.7	29.7	7.6
Kyrgyzstan .....	30.4	63.2	6.5	0.9	24.7	60.1	15.2	1.8	17.8	57.6	24.6	5.5
Lao People's Dem. Republic....	35.2	59.0	5.8	0.6	21.0	63.2	15.7	1.8	15.0	50.8	34.2	10.5
Latvia .....	14.8	60.8	24.3	4.6	16.9	52.7	30.4	6.5	16.7	54.0	29.2	8.6
Lebanon .....	20.8	67.0	12.1	1.5	13.4	52.8	33.8	8.1	13.5	45.9	40.6	16.9
Lesotho .....	36.4	57.3	6.3	0.8	25.8	64.9	9.3	0.7	17.7	57.6	24.8	4.8

TABLE S.6. (continued)

Country or area	2013				2050				2100			
	0-14	15-59	60+	80+	0-14	15-59	60+	80+	0-14	15-59	60+	80+
Liberia .....	42.9	52.3	4.8	0.3	31.7	60.2	8.1	0.6	20.8	59.3	19.8	3.2
Libya .....	29.4	63.4	7.2	0.8	16.9	58.5	24.6	3.9	13.8	48.1	38.0	14.6
Lithuania .....	15.2	64.1	20.8	3.8	15.7	53.0	31.2	6.8	16.1	53.2	30.7	9.2
Luxembourg .....	17.5	63.1	19.3	4.0	16.3	54.6	29.1	8.5	14.9	48.4	36.7	14.4
Madagascar .....	42.4	53.1	4.5	0.4	32.6	59.1	8.3	0.8	21.6	58.7	19.7	3.8
Malawi.....	45.3	49.8	4.9	0.4	35.5	58.2	6.3	0.5	23.4	59.7	16.8	2.7
Malaysia .....	26.1	65.4	8.5	0.7	17.4	59.5	23.1	3.5	15.0	50.2	34.8	11.0
Maldives.....	28.7	64.6	6.7	0.8	16.3	57.9	25.8	4.7	13.4	46.0	40.6	17.6
Mali .....	47.4	48.4	4.2	0.3	39.8	55.2	5.1	0.3	24.1	61.9	14.0	1.4
Malta .....	14.7	61.9	23.5	2.8	12.5	50.7	36.8	10.3	13.4	46.4	40.1	16.6
Martinique .....	18.4	59.5	22.1	4.5	14.0	48.8	37.2	15.7	14.2	45.9	39.9	17.9
Mauritania .....	40.1	54.9	5.0	0.4	30.9	59.9	9.2	0.7	22.0	60.7	17.4	2.1
Mauritius .....	19.7	66.6	13.7	1.6	14.7	55.7	29.6	6.6	15.1	50.1	34.7	11.7
Mayotte .....	45.2	51.0	3.8	0.4	25.4	61.2	13.4	2.8	15.3	50.7	34.0	12.4
Mexico.....	28.5	62.0	9.5	1.4	16.6	57.4	25.9	5.9	13.8	46.8	39.4	15.9
Micronesia (Fed. States of).....	35.1	57.9	7.0	0.8	23.1	64.6	12.3	1.2	17.7	56.2	26.1	4.6
Mongolia .....	27.3	66.8	5.9	0.5	21.4	58.8	19.8	2.2	17.2	54.8	28.0	7.6
Montenegro .....	18.7	62.2	19.0	2.3	15.1	55.3	29.6	5.9	15.2	51.1	33.7	10.0
Morocco .....	27.9	64.3	7.8	0.9	20.1	58.8	21.0	3.0	16.0	52.6	31.4	9.3
Mozambique.....	45.4	49.6	5.0	0.4	34.8	59.1	6.1	0.7	21.4	59.6	19.0	3.3
Myanmar .....	24.9	66.7	8.4	0.8	17.3	60.5	22.3	2.3	16.8	55.8	27.4	5.4
Namibia.....	36.0	58.5	5.4	0.5	23.3	64.0	12.7	1.3	16.7	55.4	27.9	6.1
Nepal .....	34.7	57.5	7.8	0.6	19.0	62.8	18.1	2.4	15.3	50.4	34.3	10.7
Netherlands .....	17.1	59.5	23.4	4.2	15.6	51.5	32.9	11.2	15.3	48.8	36.0	13.6
New Caledonia .....	22.7	63.3	14.1	1.9	17.4	57.9	24.7	5.7	15.2	49.7	35.1	12.3
New Zealand .....	20.2	60.5	19.3	3.6	17.0	54.1	28.8	8.9	14.7	48.6	36.7	14.4
Nicaragua .....	32.8	60.4	6.8	1.1	19.0	59.7	21.3	4.1	14.0	47.8	38.2	14.8
Niger.....	50.1	45.7	4.2	0.2	44.4	51.6	4.0	0.3	27.4	61.6	11.1	1.0
Nigeria.....	44.4	51.2	4.5	0.2	37.1	56.9	6.0	0.3	23.3	61.2	15.5	1.9
Norway.....	18.6	59.8	21.6	4.4	17.7	54.1	28.1	8.4	15.9	50.0	34.1	12.7
Oman .....	23.5	72.5	4.0	0.4	14.7	49.6	35.7	2.5	15.5	49.2	35.3	14.3
Pakistan .....	33.8	59.7	6.5	0.6	21.2	64.0	14.8	1.4	16.3	55.9	27.7	5.4
Panama .....	28.3	61.3	10.3	1.7	19.0	57.8	23.3	5.6	14.8	49.4	35.8	13.2
Papua New Guinea .....	38.0	57.1	4.9	0.3	27.4	62.8	9.8	0.8	19.8	60.7	19.5	2.8
Paraguay .....	32.4	59.4	8.2	1.1	22.5	60.9	16.6	2.5	16.4	54.3	29.3	7.7
Peru .....	28.8	61.9	9.3	1.2	18.1	58.6	23.3	4.9	14.1	48.3	37.6	14.0
Philippines.....	34.1	59.4	6.4	0.5	24.1	62.2	13.7	1.6	17.3	56.2	26.5	5.6
Poland.....	15.0	63.9	21.1	3.8	13.9	49.4	36.7	8.6	14.8	49.5	35.7	13.4
Portugal .....	14.8	60.5	24.7	5.1	12.0	47.1	40.8	12.4	13.3	45.4	41.3	17.7
Puerto Rico.....	19.5	61.5	19.0	3.6	14.1	53.5	32.5	9.1	13.9	47.5	38.7	15.2
Qatar.....	13.6	84.5	1.9	0.1	9.6	47.7	42.7	3.8	12.4	47.2	40.4	15.3
Republic of Korea .....	14.9	68.0	17.1	2.4	12.0	46.9	41.1	14.2	13.4	44.4	42.3	19.4
Republic of Moldova.....	16.6	66.2	17.2	2.3	14.6	54.2	31.2	4.4	15.7	53.9	30.3	8.3
Réunion .....	25.1	62.4	12.5	2.0	17.4	55.3	27.3	8.4	14.8	47.8	37.4	15.7
Romania .....	15.1	63.9	21.0	3.5	13.8	49.4	36.7	7.7	14.8	50.4	34.8	11.9
Russian Federation .....	15.8	65.2	19.0	2.9	17.1	54.4	28.5	4.7	17.0	55.2	27.8	7.1
Rwanda.....	42.9	53.0	4.0	0.4	28.8	60.9	10.3	1.0	17.0	56.5	26.5	6.2
Saint Lucia .....	24.0	63.9	12.1	2.3	15.3	57.5	27.2	6.3	14.4	49.1	36.5	12.6
St. Vincent and the Grenadines.....	25.3	64.5	10.2	1.5	16.9	58.6	24.4	4.8	15.3	51.7	33.0	9.9
Samoa.....	37.7	54.7	7.5	1.0	27.9	57.8	14.3	3.6	18.2	54.8	26.9	8.0
Sao Tome and Principe.....	41.6	53.7	4.7	0.6	29.4	60.0	10.6	0.9	19.7	58.7	21.6	3.9
Saudi Arabia.....	29.0	66.1	4.9	0.7	15.9	58.8	25.3	3.6	14.0	49.3	36.7	14.4

TABLE S.6. (continued)

Country or area	2013				2050				2100			
	0-14	15-59	60+	80+	0-14	15-59	60+	80+	0-14	15-59	60+	80+
Senegal .....	43.5	51.9	4.5	0.4	33.3	59.1	7.6	0.5	22.6	60.7	16.7	2.1
Serbia .....	16.2	62.7	21.1	3.3	12.6	51.0	36.4	7.1	14.1	48.4	37.5	12.9
Seychelles.....	22.1	67.0	10.8	1.9	17.4	54.8	27.7	6.2	15.4	51.0	33.6	11.1
Sierra Leone .....	41.6	54.0	4.4	0.2	30.3	61.7	8.0	0.3	21.2	61.4	17.5	1.7
Singapore.....	16.1	68.2	15.8	2.1	11.8	52.8	35.5	11.2	10.7	43.4	46.0	20.7
Slovakia.....	15.1	65.7	19.2	3.0	14.0	50.6	35.4	7.1	15.0	50.4	34.6	11.7
Slovenia.....	14.3	61.9	23.8	4.6	14.4	48.5	37.1	10.9	14.6	48.9	36.5	14.4
Solomon Islands .....	40.2	54.7	5.1	0.5	28.4	61.0	10.6	1.0	18.6	57.5	23.9	4.9
Somalia.....	47.2	48.3	4.5	0.3	37.0	57.6	5.3	0.4	23.2	61.8	15.0	1.6
South Africa .....	29.5	61.9	8.6	1.0	21.6	62.8	15.6	2.0	16.7	55.5	27.7	6.7
South Sudan .....	42.1	52.7	5.2	0.4	30.9	60.7	8.4	0.8	19.8	58.9	21.4	3.9
Spain.....	15.4	61.5	23.1	5.6	13.9	45.9	40.2	12.8	14.0	47.0	39.1	17.2
Sri Lanka .....	25.2	62.1	12.7	1.4	18.7	55.6	25.7	5.5	15.5	50.9	33.6	11.3
State of Palestine .....	40.1	55.3	4.6	0.4	26.6	62.0	11.4	1.4	17.4	54.8	27.8	7.2
Sudan.....	41.2	53.8	5.0	0.4	30.0	61.0	9.0	0.8	20.7	60.5	18.8	2.5
Suriname .....	27.4	62.9	9.7	1.2	17.9	59.1	23.0	4.2	15.9	52.6	31.6	8.8
Swaziland.....	37.8	56.8	5.4	0.4	27.2	65.1	7.7	0.7	18.0	58.3	23.7	4.4
Sweden.....	16.9	57.6	25.5	5.2	18.0	53.5	28.5	8.8	16.3	50.3	33.4	12.6
Switzerland.....	14.8	61.8	23.4	5.0	15.4	54.2	30.4	9.8	14.7	48.0	37.3	14.8
Syrian Arab Republic .....	35.1	58.6	6.3	0.6	20.5	61.3	18.1	2.7	14.7	50.0	35.3	11.5
Tajikistan.....	35.9	59.3	4.9	0.6	28.8	59.3	11.9	1.4	19.4	58.8	21.8	4.5
TFYR Macedonia .....	16.7	65.3	18.0	2.3	13.3	52.1	34.6	7.3	14.2	48.8	37.0	13.1
Thailand.....	18.2	67.3	14.5	1.9	12.5	50.0	37.5	10.0	13.8	47.0	39.2	14.9
Timor-Leste.....	45.8	49.0	5.2	0.3	32.9	62.0	5.1	0.7	18.3	56.8	24.9	5.6
Togo .....	41.8	53.7	4.4	0.3	31.8	60.0	8.3	0.5	21.4	60.0	18.6	2.8
Tonga .....	37.2	54.8	8.0	1.4	27.4	59.7	13.0	2.5	18.7	55.6	25.8	6.5
Trinidad and Tobago .....	20.8	65.6	13.6	1.6	16.3	53.5	30.3	4.8	15.8	52.5	31.7	9.0
Tunisia.....	23.2	66.0	10.8	1.4	16.2	53.7	30.1	6.1	14.7	49.1	36.2	13.9
Turkey .....	25.7	63.5	10.8	1.4	16.4	56.2	27.3	5.7	14.2	48.1	37.8	14.2
Turkmenistan.....	28.5	65.0	6.5	0.8	19.5	62.4	18.1	2.0	16.6	56.1	27.2	5.8
Uganda .....	48.4	47.9	3.7	0.4	35.8	58.0	6.2	0.6	21.2	59.2	19.6	3.8
Ukraine.....	14.5	64.3	21.3	3.4	16.1	53.2	30.8	5.0	16.6	55.9	27.5	6.9
United Arab Emirates.....	15.3	83.8	1.0	0.1	11.2	54.7	34.0	1.2	12.0	46.5	41.5	15.3
United Kingdom.....	17.6	59.2	23.2	4.8	16.6	52.6	30.7	9.5	15.4	49.4	35.2	13.4
United Republic of Tanzania...	44.9	50.3	4.9	0.4	35.7	57.0	7.3	0.8	23.0	58.8	18.2	3.6
United States of America.....	19.5	60.7	19.7	3.7	18.2	54.8	27.0	7.9	16.7	51.1	32.2	11.2
United States Virgin Islands....	20.7	56.7	22.6	2.7	18.3	52.5	29.2	11.8	15.1	49.1	35.8	14.3
Uruguay.....	21.8	59.4	18.7	4.0	17.0	55.6	27.4	6.8	15.0	49.5	35.5	12.7
Uzbekistan.....	28.6	64.8	6.5	0.9	18.8	61.8	19.4	2.5	16.0	54.6	29.4	7.3
Vanuatu .....	37.1	56.8	6.1	0.5	25.3	60.4	14.3	1.9	17.1	54.0	28.9	8.3
Venezuela (Bolivarian Republic of).....	28.5	62.0	9.4	1.1	18.9	59.1	22.0	4.3	14.9	50.6	34.5	11.3
Viet Nam.....	22.7	67.7	9.6	2.0	14.5	54.9	30.6	6.8	14.2	48.2	37.6	14.6
Western Sahara.....	26.6	68.7	4.8	0.3	17.8	59.6	22.5	2.3	16.1	54.0	29.9	7.1
Yemen .....	40.2	55.2	4.6	0.4	23.7	65.8	10.5	0.6	16.1	58.0	25.8	3.8
Zambia.....	46.6	49.5	3.9	0.4	39.5	54.4	6.1	0.5	28.9	58.2	12.8	2.0
Zimbabwe.....	39.5	54.9	5.7	0.7	25.8	62.7	11.5	0.8	16.6	54.9	28.5	7.4
Other non-specified areas .....	14.6	68.4	16.9	2.9	11.1	46.6	42.3	13.4	13.6	45.6	40.8	17.6

Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2013). *World Population Prospects: The 2012 Revision*. New York: United Nations.

NOTE: Only countries or areas with 90,000 persons or more in 2013 are considered.

TABLE S.7. TEN COUNTRIES OR AREAS WITH THE OLDEST AND TEN COUNTRIES WITH THE YOUNGEST POPULATIONS, 1950, 1980, 2013, 2050 AND 2100 (MEDIUM VARIANT)

1950		1980		2013		2050		2100	
Country or area	Median age (years)	Country or area	Median age (years)	Country or area	Median age (years)	Country or area	Median age (years)	Country or area	Median age (years)
<i>A. Oldest populations</i>									
1. Channel Islands	35.7	1. Germany	36.7	1. Japan	45.9	1. Qatar	55.8	1. Singapore	56.4
2. Austria	35.7	2. Sweden	36.3	2. Germany	45.5	2. Other non-specified areas	54.5	2. United Arab Emirates	53.6
3. Belgium	35.5	3. Luxembourg	35.0	3. Italy	44.3	3. Cuba	54.1	3. China, Hong Kong SAR	52.9
4. Germany	35.3	4. Latvia	35.0	4. Bulgaria	43.0	4. China, Hong Kong SAR	53.9	4. Cuba	52.8
5. Luxembourg	35.0	5. Channel Islands	34.9	5. Greece	42.8	5. Republic of Korea	53.5	5. Republic of Korea	52.6
6. United Kingdom	34.9	6. Austria	34.9	6. Austria	42.7	6. Japan	53.4	6. Qatar	52.5
7. France	34.5	7. Switzerland	34.6	7. Croatia	42.6	7. Portugal	52.5	7. Portugal	52.2
8. Sweden	34.2	8. Hungary	34.4	8. Slovenia	42.4	8. Germany	51.5	8. Japan	51.8
9. Switzerland	33.2	9. United Kingdom	34.4	9. China, Hong Kong SAR	42.4	9. Thailand	51.1	9. Maldives	51.7
10. Czech Republic	32.7	10. Denmark	34.3	10. Finland	42.3	10. Oman	50.8	10. Lebanon	51.4
<i>B. Youngest populations</i>									
1. Niger	15.2	1. Kenya	15.0	1. Niger	15.0	1. Niger	17.5	1. Zambia	27.8
2. St. Vincent and the Grenadines	15.4	2. State of Palestine	15.1	2. Uganda	15.8	2. Mali	19.7	2. Niger	28.4
3. Tonga	15.5	3. Mayotte	15.4	3. Chad	15.8	3. Zambia	20.1	3. Mali	31.7
4. Grenada	16.3	4. Jordan	15.5	4. Angola	16.3	4. Somalia	21.3	4. Somalia	32.6
5. Paraguay	16.5	5. Yemen	15.5	5. Mali	16.3	5. Nigeria	21.4	5. Nigeria	32.6
6. Djibouti	16.5	6. Zimbabwe	15.5	6. Somalia	16.3	6. Burundi	22.0	6. Malawi	32.8
7. Samoa	16.6	7. Swaziland	15.6	7. Afghanistan	16.5	7. Uganda	22.0	7. Congo	33.2
8. Fiji	16.6	8. Syrian Arab Republic	15.6	8. Timor-Leste	16.6	8. Chad	22.0	8. Burundi	33.2
9. Vanuatu	16.8	9. Rwanda	16.0	9. Zambia	16.6	9. Gambia	22.1	9. Comoros	33.4
10. United Rep. of Tanzania	16.9	10. Uganda	16.2	10. Gambia	17.0	10. United Rep. of Tanzania	22.3	10. Côte d'Ivoire	33.5
WORLD	23.5	WORLD	22.6	WORLD	29.2	WORLD	36.1	WORLD	41.2

Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2013). *World Population Prospects: The 2012 Revision*. New York: United Nations.

NOTE: Only countries or areas with 90,000 persons or more in 2013 are considered.

TABLE S.8. MEDIAN AGE OF THE POPULATION BY COUNTRY, 1950, 1980, 2013, 2050 AND 2100  
(MEDIUM VARIANT)

Country or area	Median age (years)				
	1950	1980	2013	2050	2100
<b>World.....</b>	<b>23.5</b>	<b>22.6</b>	<b>29.2</b>	<b>36.1</b>	<b>41.2</b>
Afghanistan .....	18.5	16.6	16.5	30.3	43.4
Albania .....	20.9	20.5	32.9	47.6	49.9
Algeria .....	19.4	16.7	26.9	36.3	43.2
Angola .....	19.4	16.7	16.3	22.6	35.4
Antigua and Barbuda .....	20.6	22.5	30.5	40.5	46.7
Argentina .....	25.7	27.2	31.1	40.1	47.0
Armenia .....	22.4	23.5	32.7	45.6	47.1
Aruba .....	18.5	26.0	39.5	45.2	46.7
Australia .....	30.4	29.4	37.2	40.6	47.3
Austria .....	35.7	34.9	42.7	46.1	47.9
Azerbaijan .....	22.8	21.1	29.7	41.6	45.6
Bahamas .....	20.7	20.2	31.8	41.2	46.3
Bahrain .....	18.9	22.3	30.1	45.1	50.3
Bangladesh .....	19.3	17.6	25.1	39.9	48.9
Barbados .....	24.6	24.5	36.9	42.6	45.0
Belarus .....	27.2	31.3	39.3	43.6	43.8
Belgium .....	35.5	34.2	41.6	43.8	46.4
Belize .....	20.8	16.4	23.0	35.7	48.5
Benin .....	24.2	17.5	18.4	25.3	35.4
Bhutan .....	18.0	18.9	25.8	40.5	47.9
Bolivia (Plurinational State of) .....	19.2	18.5	22.4	31.2	41.4
Bosnia and Herzegovina .....	20.0	25.8	39.5	50.4	48.7
Botswana .....	19.2	16.6	22.5	32.5	43.3
Brazil .....	19.2	20.3	30.3	44.4	49.8
Brunei Darussalam .....	22.4	20.4	30.5	43.7	50.0
Bulgaria .....	27.3	34.2	43.0	48.1	45.3
Burkina Faso .....	19.5	17.1	17.1	23.2	34.6
Burundi .....	19.5	17.6	17.6	22.0	33.2
Cambodia .....	18.7	19.2	24.4	36.2	47.3
Cameroon .....	20.3	17.7	18.3	24.8	36.0
Canada .....	27.7	29.2	40.1	43.3	46.9
Cape Verde .....	23.0	16.4	24.2	41.7	50.0
Central African Republic .....	22.5	18.9	19.7	27.6	39.6
Chad .....	21.5	17.5	15.8	22.0	34.9
Channel Islands .....	35.7	34.9	42.0	47.6	50.5
Chile .....	22.2	22.6	33.1	45.4	49.8
China .....	23.7	22.1	35.4	46.3	46.9
China, Hong Kong SAR .....	23.7	25.1	42.4	53.9	52.9
China, Macao SAR .....	26.5	25.5	37.4	49.1	49.6
Colombia .....	18.7	18.8	27.7	39.6	47.7
Comoros .....	21.2	17.3	19.1	24.6	33.4
Congo .....	20.0	17.6	18.8	23.1	33.2
Costa Rica .....	21.6	20.0	29.7	45.4	51.0
Côte d'Ivoire .....	18.3	17.5	19.0	23.9	33.5
Croatia .....	27.9	32.8	42.6	48.9	48.7
Cuba .....	22.3	23.9	40.1	54.1	52.8
Curaçao .....	22.6	23.3	40.8	46.2	46.5
Cyprus .....	23.7	28.3	35.2	47.6	49.6
Czech Republic .....	32.7	33.0	40.3	44.8	46.1

TABLE S.8 (continued)

Country or area	Median age (years)				
	1950	1980	2013	2050	2100
Dem. People's Rep. of Korea .....	18.0	21.9	33.6	41.1	45.8
Dem. Republic of the Congo .....	18.1	17.7	17.4	23.2	34.5
Denmark .....	31.7	34.3	41.1	42.3	45.3
Djibouti .....	16.5	16.5	22.8	32.4	42.7
Dominican Republic .....	17.0	18.2	25.8	38.0	48.3
Ecuador .....	20.6	18.8	26.1	37.5	48.0
Egypt .....	20.4	19.5	25.2	34.6	45.1
El Salvador .....	18.5	17.2	24.1	38.5	47.7
Equatorial Guinea .....	23.8	17.3	20.6	27.3	39.9
Eritrea .....	17.3	16.8	18.4	26.7	40.2
Estonia .....	29.9	33.9	40.9	44.4	45.1
Ethiopia .....	17.9	17.6	18.2	29.2	43.1
Fiji .....	16.6	19.5	27.1	35.6	43.7
Finland .....	27.8	32.8	42.3	44.2	47.4
France .....	34.5	32.5	40.6	43.4	46.7
French Guiana .....	26.6	23.1	24.9	33.1	43.8
French Polynesia .....	18.7	19.5	30.9	43.1	49.3
Gabon .....	28.1	21.6	20.7	27.5	38.6
Gambia .....	19.5	17.8	17.0	22.1	34.5
Georgia .....	27.3	29.1	37.6	43.4	46.4
Germany .....	35.3	36.7	45.5	51.5	51.1
Ghana .....	17.4	17.0	20.6	28.4	37.5
Greece .....	26.0	34.2	42.8	48.9	49.1
Grenada .....	16.3	18.8	26.3	41.3	46.3
Guadeloupe .....	20.9	22.4	37.7	47.0	49.2
Guam .....	22.8	22.6	29.8	39.8	49.0
Guatemala .....	17.5	17.2	19.4	28.8	42.3
Guinea .....	21.9	19.1	18.6	25.4	35.6
Guinea-Bissau .....	20.9	18.8	19.1	24.7	33.8
Guyana .....	20.4	18.0	22.6	35.8	41.1
Haiti .....	20.2	19.1	22.2	32.4	41.9
Honduras .....	18.8	16.4	21.9	34.1	47.7
Hungary .....	30.1	34.4	40.6	46.1	46.5
Iceland .....	26.5	26.9	35.5	42.9	48.9
India .....	21.3	20.2	26.4	36.7	44.3
Indonesia .....	20.0	19.1	27.8	38.4	45.3
Iran (Islamic Republic of) .....	21.9	18.0	28.5	42.2	48.3
Iraq .....	22.0	16.6	19.7	27.8	39.0
Ireland .....	30.0	26.6	35.3	41.9	46.6
Israel .....	25.5	25.0	30.1	36.1	45.9
Italy .....	28.6	34.2	44.3	49.9	49.6
Jamaica .....	22.2	19.2	27.7	40.2	47.2
Japan .....	22.3	32.6	45.9	53.4	51.8
Jordan .....	17.2	15.5	23.4	33.8	45.8
Kazakhstan .....	23.2	23.5	29.4	34.9	41.1
Kenya .....	20.0	15.0	18.8	25.5	37.4
Kiribati .....	21.3	18.9	23.5	33.1	43.7
Kuwait .....	21.5	20.8	29.2	35.6	43.9
Kyrgyzstan .....	25.3	20.8	24.6	31.8	40.4
Lao People's Dem. Republic .....	19.8	17.7	21.4	34.3	46.9
Latvia .....	30.5	35.0	41.5	42.7	43.3
Lebanon .....	23.2	19.9	29.8	48.8	51.4

TABLE S.8. (continued)

Country or area	Median age (years)				
	1950	1980	2013	2050	2100
Lesotho .....	19.8	17.6	20.7	29.0	40.4
Liberia .....	19.1	17.5	18.5	24.9	36.0
Libya.....	21.0	16.9	26.6	40.6	50.0
Lithuania.....	27.8	31.9	39.3	44.2	44.5
Luxembourg .....	35.0	35.0	39.0	43.6	48.1
Madagascar.....	20.9	16.8	18.4	24.4	35.1
Malawi.....	17.1	16.4	17.2	22.3	32.8
Malaysia .....	19.8	19.6	27.4	39.8	47.1
Maldives .....	18.6	17.3	25.0	41.6	51.7
Mali .....	20.9	18.2	16.3	19.7	31.7
Malta.....	23.7	28.3	40.9	50.7	51.3
Martinique .....	21.9	23.5	41.7	50.2	50.5
Mauritania .....	17.9	17.2	19.8	25.7	34.3
Mauritius .....	17.3	21.5	34.6	46.0	46.9
Mayotte.....	30.3	15.4	17.8	30.3	46.2
Mexico.....	18.7	17.4	27.0	41.9	50.5
Micronesia (Fed. States of).....	19.8	16.3	21.0	30.8	41.1
Mongolia .....	25.0	17.8	26.8	35.7	42.4
Montenegro .....	21.6	26.6	37.1	45.0	46.5
Morocco.....	19.5	17.5	27.0	36.7	44.8
Mozambique .....	19.1	18.0	17.3	22.5	35.1
Myanmar .....	22.4	19.2	29.0	40.1	42.6
Namibia .....	20.9	16.7	21.2	31.6	42.6
Nepal .....	19.9	19.2	22.4	38.2	46.5
Netherlands.....	28.0	31.2	41.8	45.7	47.4
New Caledonia .....	22.5	22.2	32.8	40.6	47.1
New Zealand.....	29.4	27.9	37.0	42.3	48.3
Nicaragua.....	18.2	16.3	23.1	38.0	49.7
Niger.....	15.2	16.3	15.0	17.5	28.4
Nigeria.....	19.1	18.0	17.8	21.4	32.6
Norway .....	32.6	33.3	39.0	41.4	46.0
Oman .....	18.8	17.6	26.3	50.8	46.6
Pakistan .....	19.8	18.3	22.5	34.1	43.0
Panama .....	18.8	19.1	27.9	38.5	47.7
Papua New Guinea .....	20.3	17.3	20.9	28.3	37.0
Paraguay .....	16.5	18.4	23.9	33.4	43.4
Peru.....	19.1	18.7	26.5	39.3	49.3
Philippines .....	18.2	18.1	23.0	31.5	41.5
Poland.....	25.8	29.5	38.8	48.9	48.0
Portugal .....	26.1	30.7	42.2	52.5	52.2
Puerto Rico .....	18.4	24.6	35.7	47.1	50.1
Qatar.....	18.9	23.3	31.7	55.8	52.5
Republic of Korea.....	19.0	22.2	39.4	53.5	52.6
Republic of Moldova.....	26.6	27.7	35.8	45.8	44.7
Réunion .....	20.3	19.8	30.7	41.5	48.5
Romania.....	26.3	30.7	39.4	48.8	47.4
Russian Federation .....	24.3	31.3	38.3	41.6	42.4
Rwanda.....	18.0	16.0	18.2	27.1	41.6
Saint Lucia.....	20.7	17.5	30.5	43.7	48.3
St. Vincent and the Grenadines.....	15.4	17.4	29.0	40.8	46.0
Samoa .....	16.6	16.4	21.0	28.6	40.2
Sao Tome and Principe.....	24.5	16.3	19.2	26.9	37.4



TABLE S.8 (continued)

Country or area	Median age (years)				
	1950	1980	2013	2050	2100
Saudi Arabia .....	19.0	18.0	27.5	41.7	49.4
Senegal .....	19.2	16.6	18.1	24.0	33.6
Serbia .....	25.8	30.4	38.7	50.6	49.2
Seychelles .....	26.1	20.0	32.6	41.0	46.3
Sierra Leone .....	20.4	18.3	19.1	25.8	35.2
Singapore .....	20.0	24.5	38.1	50.0	56.4
Slovakia .....	27.0	28.8	38.2	48.2	47.3
Slovenia .....	27.7	31.7	42.4	48.2	48.5
Solomon Islands .....	18.3	16.3	19.7	27.6	39.2
Somalia .....	19.5	18.1	16.3	21.3	32.6
South Africa .....	20.9	19.1	26.0	33.7	42.4
South Sudan .....	18.1	17.7	18.6	25.5	37.4
Spain .....	27.5	30.7	41.4	50.4	50.5
Sri Lanka .....	21.6	21.7	31.4	39.7	46.2
State of Palestine .....	17.3	15.1	19.1	29.0	41.8
Sudan .....	18.1	16.5	19.2	26.2	35.9
Suriname .....	20.1	18.8	28.5	39.7	44.8
Swaziland .....	18.4	15.6	20.1	27.7	39.7
Sweden .....	34.2	36.3	41.0	41.1	45.3
Switzerland .....	33.2	34.6	42.0	44.4	48.7
Syrian Arab Republic .....	20.3	15.6	22.4	35.3	47.6
Tajikistan .....	22.3	18.0	21.7	28.3	37.8
TFYR Macedonia .....	21.8	26.1	37.1	49.1	49.0
Thailand .....	18.6	19.7	36.9	51.1	50.5
Timor-Leste .....	19.6	19.2	16.6	23.1	39.8
Togo .....	19.4	16.8	18.9	25.1	35.0
Tonga .....	15.5	18.3	21.3	28.6	39.5
Trinidad and Tobago .....	20.9	21.7	33.3	43.6	45.1
Tunisia .....	19.3	18.4	30.3	43.4	48.2
Turkey .....	19.7	19.8	29.4	42.4	49.4
Turkmenistan .....	23.5	18.7	25.6	36.5	42.5
Uganda .....	18.2	16.2	15.8	22.0	35.3
Ukraine .....	27.6	33.5	39.7	43.4	42.7
United Arab Emirates .....	18.9	26.0	30.0	46.9	53.6
United Kingdom .....	34.9	34.4	40.2	43.3	47.0
United Republic of Tanzania .....	16.9	16.7	17.5	22.3	33.5
United States of America .....	30.0	30.1	37.4	40.6	44.4
United States Virgin Islands .....	22.0	22.0	40.2	40.8	47.5
Uruguay .....	27.8	30.1	34.4	42.2	47.4
Uzbekistan .....	24.1	18.7	25.3	37.6	44.0
Vanuatu .....	16.8	17.5	21.7	30.8	42.5
Venezuela (Bolivarian Republic of) .....	18.3	19.1	27.0	38.1	47.0
Viet Nam .....	24.5	19.0	29.8	45.6	49.2
Western Sahara .....	18.7	21.2	28.3	38.8	44.2
Yemen .....	18.9	15.5	19.1	30.8	42.5
Zambia .....	17.4	16.3	16.6	20.1	27.8
Zimbabwe .....	19.0	15.5	19.5	29.5	42.8
Other non-specified areas .....	19.1	22.7	38.6	54.5	51.4

Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2013).  
*World Population Prospects: The 2012 Revision*. New York: United Nations.

NOTE: Only countries or areas with 90,000 persons or more in 2013 are considered.

TABLE S.9. TOTAL FERTILITY BY COUNTRY FOR SELECTED PERIODS (MEDIUM VARIANT)

Country or area	Total fertility (average number of children per woman)						
	1975-1980	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2045-2050
<b>World.....</b>	<b>3.85</b>	<b>2.59</b>	<b>2.53</b>	<b>2.50</b>	<b>2.45</b>	<b>2.41</b>	<b>2.24</b>
Afghanistan.....	7.67	7.39	6.33	5.00	4.04	3.32	1.97
Albania.....	4.02	2.15	1.75	1.79	1.77	1.76	1.75
Algeria.....	7.18	2.38	2.72	2.82	2.55	2.35	1.93
Angola.....	7.20	6.75	6.50	5.90	5.42	4.95	3.15
Antigua and Barbuda.....	2.24	2.27	2.17	2.10	2.03	1.98	1.86
Argentina.....	3.44	2.35	2.25	2.18	2.12	2.06	1.89
Armenia.....	2.50	1.72	1.74	1.74	1.74	1.75	1.79
Aruba.....	2.45	1.82	1.74	1.68	1.66	1.67	1.76
Australia.....	1.99	1.75	1.89	1.88	1.87	1.87	1.86
Austria.....	1.65	1.38	1.40	1.47	1.52	1.57	1.74
Azerbaijan.....	3.62	2.00	2.00	1.93	1.86	1.81	1.77
Bahamas.....	2.95	1.87	1.91	1.89	1.87	1.85	1.82
Bahrain.....	5.23	2.67	2.23	2.10	1.98	1.88	1.69
Bangladesh.....	6.63	2.87	2.40	2.20	2.05	1.93	1.69
Barbados.....	2.16	1.80	1.83	1.85	1.86	1.87	1.91
Belarus.....	2.09	1.24	1.42	1.48	1.54	1.59	1.75
Belgium.....	1.70	1.68	1.82	1.85	1.87	1.89	1.93
Belize.....	6.20	3.35	2.94	2.70	2.52	2.37	1.93
Benin.....	7.00	5.78	5.31	4.89	4.50	4.14	2.93
Bhutan.....	6.67	3.14	2.55	2.26	2.07	1.92	1.67
Bolivia (Plurinational State of).....	5.80	3.96	3.50	3.25	3.04	2.86	2.26
Bosnia and Herzegovina.....	2.24	1.23	1.22	1.28	1.36	1.43	1.67
Botswana.....	6.37	3.18	2.90	2.64	2.44	2.29	1.85
Brazil.....	4.31	2.25	1.90	1.82	1.75	1.71	1.71
Brunei Darussalam.....	4.71	2.28	2.11	2.01	1.92	1.85	1.73
Bulgaria.....	2.19	1.24	1.43	1.53	1.61	1.67	1.84
Burkina Faso.....	7.02	6.43	6.08	5.65	5.22	4.81	3.25
Burundi.....	7.48	6.91	6.52	6.08	5.64	5.22	3.57
Cambodia.....	5.29	3.46	3.08	2.88	2.71	2.57	2.09
Cameroon.....	6.47	5.49	5.21	4.81	4.45	4.12	2.96
Canada.....	1.73	1.52	1.63	1.66	1.70	1.74	1.83
Cape Verde.....	6.62	3.28	2.60	2.33	2.14	2.01	1.73
Central African Republic.....	5.95	5.30	4.85	4.41	3.99	3.62	2.48
Chad.....	6.87	7.24	6.85	6.31	5.77	5.25	3.32
Channel Islands.....	1.52	1.41	1.42	1.46	1.49	1.52	1.62
Chile.....	2.80	2.00	1.90	1.83	1.79	1.77	1.80
China.....	3.01	1.55	1.63	1.66	1.69	1.72	1.81
China, Hong Kong SAR.....	2.31	0.96	1.03	1.13	1.21	1.29	1.55
China, Macao SAR.....	1.41	0.83	0.94	1.07	1.19	1.29	1.61
Colombia.....	4.34	2.55	2.45	2.30	2.17	2.06	1.80
Comoros.....	7.05	5.30	5.08	4.74	4.43	4.15	3.13
Congo.....	6.29	5.13	5.10	5.00	4.69	4.40	3.26
Costa Rica.....	3.78	2.25	1.92	1.81	1.73	1.69	1.71
Côte d'Ivoire.....	7.81	5.17	4.89	4.92	4.56	4.25	3.16
Croatia.....	2.02	1.36	1.43	1.49	1.55	1.59	1.74
Cuba.....	2.15	1.63	1.50	1.45	1.45	1.49	1.66
Curaçao.....	2.45	2.09	1.98	1.92	1.88	1.86	1.84
Cyprus.....	2.29	1.59	1.51	1.46	1.47	1.50	1.67

TABLE S.9 (continued)

Country or area	Total fertility (average number of children per woman)						
	1975-1980	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2045-2050
Czech Republic.....	2.32	1.19	1.43	1.55	1.64	1.71	1.87
Dem. People's Rep. of Korea.....	2.68	2.01	2.00	2.00	1.94	1.90	1.84
Dem. Republic of the Congo.....	6.46	6.91	6.50	5.98	5.47	4.99	3.23
Denmark.....	1.68	1.76	1.85	1.88	1.89	1.90	1.94
Djibouti.....	6.64	4.22	3.80	3.42	3.11	2.86	2.17
Dominican Republic.....	4.76	2.83	2.67	2.50	2.35	2.22	1.84
Ecuador.....	5.09	2.97	2.75	2.58	2.43	2.31	1.91
Egypt.....	5.50	3.15	2.98	2.79	2.62	2.48	2.03
El Salvador.....	5.46	2.60	2.35	2.20	2.08	1.98	1.75
Equatorial Guinea.....	5.68	5.64	5.36	4.89	4.40	3.95	2.55
Eritrea.....	6.62	5.74	5.20	4.74	4.30	3.89	2.58
Estonia.....	2.06	1.39	1.64	1.59	1.66	1.71	1.85
Ethiopia.....	7.18	6.13	5.26	4.59	4.00	3.52	2.30
Fiji.....	4.00	2.98	2.75	2.61	2.47	2.36	1.98
Finland.....	1.66	1.75	1.84	1.85	1.86	1.87	1.89
France.....	1.86	1.88	1.97	1.98	1.98	1.98	1.99
French Guiana.....	3.30	3.68	3.27	3.08	2.92	2.78	2.31
French Polynesia.....	4.23	2.36	2.17	2.07	1.99	1.92	1.77
Gabon.....	5.57	4.47	4.29	4.12	3.80	3.50	2.58
Gambia.....	6.34	5.85	5.79	5.78	5.53	5.21	3.42
Georgia.....	2.39	1.58	1.80	1.81	1.82	1.82	1.85
Germany.....	1.51	1.35	1.36	1.42	1.46	1.50	1.64
Ghana.....	6.69	4.55	4.22	3.89	3.60	3.35	2.54
Greece.....	2.32	1.28	1.46	1.52	1.57	1.61	1.76
Grenada.....	4.30	2.43	2.30	2.18	2.07	1.98	1.79
Guadeloupe.....	3.06	2.06	2.14	2.08	2.03	1.98	1.90
Guam.....	3.52	2.74	2.54	2.42	2.31	2.22	1.94
Guatemala.....	6.20	4.60	4.15	3.82	3.52	3.26	2.45
Guinea.....	6.45	5.75	5.39	4.95	4.55	4.17	2.89
Guinea-Bissau.....	6.11	5.66	5.28	4.96	4.65	4.35	3.14
Guyana.....	4.41	2.65	2.77	2.55	2.40	2.28	1.99
Haiti.....	5.80	4.00	3.55	3.18	2.90	2.67	2.06
Honduras.....	6.60	3.72	3.31	3.03	2.80	2.61	2.04
Hungary.....	2.13	1.30	1.33	1.41	1.47	1.53	1.71
Iceland.....	2.45	1.99	2.13	2.08	2.04	2.00	1.88
India.....	4.89	3.00	2.66	2.50	2.37	2.25	1.92
Indonesia.....	4.73	2.48	2.50	2.35	2.22	2.12	1.87
Iran (Islamic Republic of).....	6.28	1.97	1.89	1.93	1.89	1.86	1.83
Iraq.....	6.80	4.75	4.38	4.06	3.77	3.52	2.69
Ireland.....	3.25	1.97	2.00	2.00	1.99	1.99	1.97
Israel.....	3.47	2.91	2.91	2.91	2.80	2.69	2.26
Italy.....	1.94	1.25	1.39	1.48	1.55	1.61	1.79
Jamaica.....	4.00	2.54	2.40	2.27	2.16	2.07	1.85
Japan.....	1.83	1.30	1.34	1.41	1.48	1.54	1.72
Jordan.....	7.38	3.85	3.64	3.27	2.98	2.75	2.05
Kazakhstan.....	3.06	2.01	2.54	2.44	2.36	2.28	2.03
Kenya.....	7.64	5.00	4.80	4.41	4.08	3.79	2.82
Kiribati.....	5.10	3.56	3.16	2.98	2.82	2.68	2.19
Kuwait.....	5.89	2.58	2.71	2.60	2.51	2.43	2.18
Kyrgyzstan.....	4.05	2.50	2.78	3.10	2.91	2.75	2.24
Lao People's Dem. Republic.....	6.15	3.70	3.52	3.05	2.72	2.48	1.88
Latvia.....	1.87	1.29	1.49	1.59	1.67	1.73	1.87

TABLE S.9. (continued)

Country or area	Total fertility (average number of children per woman)						
	1975-1980	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2045-2050
Lebanon .....	4.23	2.01	1.58	1.51	1.48	1.48	1.63
Lesotho .....	5.69	3.79	3.37	3.07	2.82	2.62	2.07
Liberia .....	6.93	5.68	5.23	4.83	4.47	4.13	2.97
Libya .....	7.94	2.92	2.67	2.38	2.15	1.97	1.62
Lithuania .....	2.10	1.28	1.42	1.51	1.58	1.63	1.79
Luxembourg .....	1.49	1.65	1.62	1.67	1.71	1.74	1.83
Madagascar .....	7.00	5.28	4.83	4.50	4.21	3.95	3.01
Malawi .....	7.60	6.07	5.83	5.42	5.05	4.71	3.45
Malaysia .....	3.93	2.45	2.07	1.98	1.91	1.85	1.76
Maldives .....	6.85	2.76	2.42	2.29	2.07	1.90	1.66
Mali .....	7.01	6.81	6.80	6.86	6.71	6.40	4.21
Malta .....	2.12	1.41	1.40	1.36	1.37	1.42	1.64
Martinique .....	2.65	1.98	1.91	1.83	1.79	1.78	1.80
Mauritania .....	6.57	5.23	4.96	4.70	4.39	4.10	3.05
Mauritius .....	3.11	1.93	1.58	1.51	1.50	1.53	1.69
Mayotte .....	7.91	4.45	4.30	3.83	3.47	3.17	2.26
Mexico .....	5.25	2.54	2.37	2.20	2.06	1.94	1.74
Micronesia (Fed. States of) .....	6.40	4.05	3.62	3.33	3.08	2.88	2.23
Mongolia .....	6.65	2.08	2.37	2.44	2.33	2.25	2.01
Montenegro .....	2.37	1.78	1.73	1.67	1.64	1.64	1.72
Morocco .....	5.90	2.52	2.38	2.78	2.56	2.40	1.96
Mozambique .....	6.53	5.73	5.57	5.22	4.86	4.51	3.09
Myanmar .....	5.21	2.25	2.07	1.95	1.86	1.79	1.71
Namibia .....	6.60	3.81	3.40	3.08	2.83	2.63	2.03
Nepal .....	5.83	3.70	2.99	2.32	2.11	1.96	1.71
Netherlands .....	1.60	1.73	1.75	1.77	1.79	1.81	1.86
New Caledonia .....	3.91	2.26	2.24	2.13	2.04	1.98	1.84
New Zealand .....	2.18	1.95	2.14	2.05	1.99	1.94	1.83
Nicaragua .....	6.35	3.00	2.76	2.52	2.33	2.19	1.82
Niger .....	7.63	7.67	7.58	7.58	7.41	7.15	5.03
Nigeria .....	6.76	6.05	6.00	6.00	5.73	5.43	3.79
Norway .....	1.81	1.81	1.92	1.93	1.93	1.93	1.94
Oman .....	8.10	3.21	2.89	2.91	2.54	2.28	1.71
Pakistan .....	6.60	4.00	3.65	3.22	2.89	2.65	1.99
Panama .....	4.19	2.76	2.62	2.48	2.36	2.26	1.94
Papua New Guinea .....	5.87	4.35	4.10	3.81	3.55	3.32	2.58
Paraguay .....	5.20	3.48	3.08	2.89	2.72	2.58	2.10
Peru .....	5.38	2.80	2.60	2.43	2.29	2.17	1.83
Philippines .....	5.46	3.70	3.27	3.07	2.89	2.74	2.20
Poland .....	2.26	1.27	1.33	1.41	1.48	1.53	1.72
Portugal .....	2.55	1.45	1.36	1.32	1.33	1.38	1.62
Puerto Rico .....	2.76	1.82	1.70	1.64	1.61	1.62	1.70
Qatar .....	6.11	2.95	2.21	2.05	1.92	1.83	1.67
Republic of Korea .....	2.92	1.22	1.23	1.32	1.39	1.46	1.68
Republic of Moldova .....	2.44	1.50	1.50	1.46	1.46	1.50	1.67
Réunion .....	3.12	2.45	2.40	2.24	2.11	2.02	1.86
Romania .....	2.53	1.28	1.33	1.41	1.48	1.53	1.72
Russian Federation .....	1.94	1.30	1.44	1.53	1.60	1.66	1.81
Rwanda .....	8.43	5.60	5.13	4.56	4.09	3.71	2.55
Saint Lucia .....	5.20	2.10	2.04	1.92	1.82	1.75	1.68
St. Vincent and the Grenadines .....	4.42	2.24	2.13	2.01	1.90	1.82	1.72
Samoa .....	6.49	4.44	4.47	4.16	3.90	3.66	2.84

TABLE S.9 (continued)

Country or area	Total fertility (average number of children per woman)						
	1975-1980	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2045-2050
Sao Tome and Principe .....	6.50	4.61	4.45	4.10	3.79	3.53	2.66
Saudi Arabia .....	7.28	3.54	3.03	2.68	2.43	2.24	1.78
Senegal .....	7.45	5.39	5.11	4.98	4.62	4.30	3.17
Serbia .....	2.37	1.55	1.41	1.37	1.38	1.43	1.64
Seychelles .....	4.27	2.20	2.30	2.18	2.08	2.00	1.84
Sierra Leone .....	7.02	5.73	5.16	4.75	4.37	4.03	2.87
Singapore .....	1.84	1.35	1.26	1.28	1.31	1.33	1.40
Slovakia .....	2.46	1.22	1.31	1.39	1.46	1.52	1.71
Slovenia .....	2.18	1.23	1.44	1.50	1.55	1.60	1.75
Solomon Islands .....	7.04	4.60	4.40	4.06	3.77	3.51	2.65
Somalia .....	7.00	7.44	7.10	6.61	6.10	5.60	3.63
South Africa .....	5.00	2.80	2.55	2.40	2.28	2.18	1.87
South Sudan .....	6.92	5.92	5.43	4.97	4.54	4.15	2.86
Spain .....	2.55	1.29	1.41	1.50	1.57	1.62	1.79
Sri Lanka .....	3.61	2.26	2.31	2.35	2.25	2.16	1.91
State of Palestine .....	7.50	5.03	4.42	4.05	3.73	3.45	2.57
Sudan .....	6.92	5.25	4.83	4.46	4.12	3.82	2.81
Suriname .....	4.20	2.62	2.42	2.28	2.16	2.06	1.84
Swaziland .....	6.73	4.01	3.75	3.36	3.06	2.82	2.12
Sweden .....	1.66	1.67	1.89	1.92	1.94	1.95	1.98
Switzerland .....	1.54	1.41	1.47	1.53	1.58	1.62	1.76
Syrian Arab Republic .....	7.32	3.67	3.19	3.00	2.75	2.54	1.92
Tajikistan .....	5.90	3.71	3.68	3.85	3.60	3.38	2.63
TFYR Macedonia .....	2.64	1.58	1.48	1.44	1.43	1.46	1.65
Thailand .....	3.92	1.60	1.49	1.41	1.36	1.38	1.61
Timor-Leste .....	4.31	6.96	6.53	5.91	5.30	4.73	2.87
Togo .....	7.28	5.15	4.89	4.68	4.33	4.02	2.96
Tonga .....	5.50	4.23	4.03	3.79	3.57	3.37	2.69
Trinidad and Tobago .....	3.24	1.75	1.80	1.80	1.79	1.79	1.81
Tunisia .....	5.69	2.04	2.05	2.02	1.91	1.84	1.76
Turkey .....	4.65	2.33	2.16	2.05	1.96	1.89	1.75
Turkmenistan .....	5.32	2.76	2.50	2.34	2.21	2.11	1.82
Uganda .....	7.10	6.75	6.38	5.91	5.44	4.98	3.24
Ukraine .....	1.98	1.15	1.39	1.46	1.52	1.57	1.74
United Arab Emirates .....	5.66	2.40	1.97	1.82	1.73	1.66	1.64
United Kingdom .....	1.73	1.66	1.88	1.88	1.89	1.89	1.90
United Republic of Tanzania .....	6.73	5.66	5.58	5.24	4.91	4.59	3.34
United States of America .....	1.77	2.04	2.06	1.97	1.98	1.98	1.99
United States Virgin Islands .....	3.49	2.14	2.44	2.49	2.38	2.29	2.01
Uruguay .....	2.89	2.20	2.12	2.05	2.00	1.96	1.86
Uzbekistan .....	5.58	2.55	2.49	2.32	2.18	2.07	1.79
Vanuatu .....	5.75	4.11	3.63	3.41	3.22	3.04	2.44
Venezuela (Bolivarian Republic of) .....	4.47	2.72	2.55	2.40	2.28	2.17	1.86
Viet Nam .....	5.50	1.93	1.89	1.75	1.67	1.62	1.68
Western Sahara .....	6.23	2.81	2.57	2.38	2.22	2.09	1.76
Yemen .....	8.58	5.91	4.91	4.15	3.57	3.15	2.03
Zambia .....	7.38	6.00	5.90	5.71	5.47	5.19	4.02
Zimbabwe .....	7.30	4.01	3.90	3.51	3.20	2.96	2.17
Other non-specified areas .....	2.64	1.43	1.26	1.21	1.21	1.28	1.58

Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2013).

World Population Prospects: The 2012 Revision. New York: United Nations.

NOTE: Only countries or areas with 90,000 persons or more in 2013 are considered.

TABLE S.10. TEN COUNTRIES OR AREAS WITH THE HIGHEST AND TEN COUNTRIES OR AREAS WITH THE LOWEST TOTAL FERTILITY,  
1975-1980, 2005-2010, 2045-2050 AND 2095-2100 (MEDIUM VARIANT)

1975-1980			2005-2010			2045-2050			2095-2100		
Rank	Country or area	Total fertility (average number of children per woman)	Rank	Country or area	Total fertility (average number of children per woman)	Rank	Country or area	Total fertility (average number of children per woman)	Rank	Country or area	Total fertility (average number of children per woman)
<i>A. Highest fertility</i>											
1.	Yemen	8.58	1.	Niger	7.58	1.	Niger	5.03	1.	Zambia	2.80
2.	Rwanda	8.43	2.	Somalia	7.10	2.	Mali	4.21	2.	Niger	2.51
3.	Oman	8.10	3.	Chad	6.85	3.	Zambia	4.02	3.	Malawi	2.28
4.	Libya	7.94	4.	Mali	6.80	4.	Nigeria	3.79	4.	Mali	2.24
5.	Mayotte	7.91	5.	Timor-Leste	6.53	5.	Somalia	3.63	5.	Congo	2.23
6.	Côte d'Ivoire	7.81	6.	Burundi	6.52	6.	Burundi	3.57	6.	United Rep. of Tanzania	2.22
7.	Afghanistan	7.67	7.	Dem. Rep. of the Congo	6.50	7.	Malawi	3.45	7.	Burundi	2.20
8.	Kenya	7.64	8.	Angola	6.50	8.	Gambia	3.42	8.	Nigeria	2.18
9.	Niger	7.63	9.	Uganda	6.38	9.	United Rep. of Tanzania	3.34	9.	Comoros	2.17
10.	Malawi	7.60	10.	Afghanistan	6.33	10.	Chad	3.32	10.	Somalia	2.14
<i>B. Lowest fertility</i>											
1.	China, Macao SAR	1.41	1.	China, Macao SAR	0.94	1.	Singapore	1.40	1.	Singapore	1.47
2.	Luxembourg	1.49	2.	China, Hong Kong SAR	1.03	2.	China, Hong Kong SAR	1.55	2.	Channel Islands	1.72
3.	Germany	1.51	3.	Bosnia and Herzegovina	1.22	3.	Other non-specified areas	1.58	3.	Yemen	1.74
4.	Channel Islands	1.52	4.	Republic of Korea	1.23	4.	China, Macao SAR	1.61	4.	China, Hong Kong SAR	1.75
5.	Switzerland	1.54	5.	Singapore	1.26	5.	Thailand	1.61	5.	Afghanistan	1.75
6.	Netherlands	1.60	6.	Other non-specified areas	1.26	6.	Channel Islands	1.62	6.	Germany	1.76
7.	Austria	1.65	7.	Slovakia	1.31	7.	Portugal	1.62	7.	Syrian Arab Republic	1.80
8.	Finland	1.66	8.	Hungary	1.33	8.	Libya	1.62	8.	Rwanda	1.80
9.	Sweden	1.66	9.	Poland	1.33	9.	Lebanon	1.63	9.	Saudi Arabia	1.81
10.	Denmark	1.68	10.	Romania	1.33	10.	Serbia	1.64	10.	Jordan	1.81
WORLD		3.85	WORLD		2.53	WORLD		2.24	WORLD		1.99

Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2013). *World Population Prospects: The 2012 Revision*. New York: United Nations.

NOTE: Only countries or areas with 90,000 persons or more in 2013 are considered.

TABLE S.11. FIFTEEN COUNTRIES OR AREAS WITH THE LARGEST AND FIFTEEN COUNTRIES OR AREAS WITH THE SMALLEST PERCENTAGE CHANGE IN TOTAL FERTILITY BETWEEN 1975-1980 AND 2005-2010, AMONG COUNTRIES WITH TOTAL FERTILITY IN 1975-1980 GREATER THAN OR EQUAL TO 4 CHILDREN PER WOMAN (MEDIUM VARIANT)

Rank	Country or area	Total fertility (average number of children per woman)		Change from 1975-1980 to 2005-2010	
		1975-1980	2005-2010	Difference	Percentage
A. Largest fertility change					
1.	Iran (Islamic Republic of)	6.28	1.89	-4.39	-69.9
2.	Libya	7.94	2.67	-5.27	-66.3
3.	Viet Nam	5.50	1.89	-3.61	-65.7
4.	United Arab Emirates	5.66	1.97	-3.69	-65.2
5.	Maldives	6.85	2.42	-4.44	-64.8
6.	Mongolia	6.65	2.37	-4.28	-64.3
7.	Oman	8.10	2.89	-5.21	-64.3
8.	Tunisia	5.69	2.05	-3.64	-63.9
9.	Qatar	6.11	2.21	-3.90	-63.8
10.	Bangladesh	6.63	2.40	-4.23	-63.8
11.	Lebanon	4.23	1.58	-2.66	-62.8
12.	Algeria	7.18	2.72	-4.45	-62.0
13.	Thailand	3.92	1.49	-2.43	-62.0
14.	Bhutan	6.67	2.55	-4.12	-61.8
15.	Saint Lucia	5.20	2.04	-3.16	-60.8
B. Smallest fertility change					
1.	Chad	6.87	6.85	-0.02	-0.3
2.	Dem. Republic of the Congo	6.46	6.50	0.04	0.6
3.	Niger	7.63	7.58	-0.05	-0.7
4.	French Guiana	3.30	3.27	-0.03	-0.9
5.	Somalia	7.00	7.10	0.10	1.5
6.	New Zealand	2.18	2.14	-0.04	-1.7
7.	Mali	7.01	6.80	-0.21	-2.9
8.	Antigua and Barbuda	2.24	2.17	-0.07	-3.0
9.	Switzerland	1.54	1.47	-0.07	-4.4
10.	Australia	1.99	1.89	-0.10	-5.1
11.	Equatorial Guinea	5.68	5.36	-0.32	-5.6
12.	France	1.86	1.97	0.11	6.0
13.	Canada	1.73	1.63	-0.11	-6.1
14.	Norway	1.81	1.92	0.11	6.3
15.	Belgium	1.70	1.82	0.11	6.6

Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2013).  
*World Population Prospects: The 2012 Revision*. New York: United Nations.

NOTE: Only countries or areas with 90,000 persons or more in 2013 are considered.

TABLE S.12. TEN COUNTRIES OR AREAS WITH THE HIGHEST AND THE TEN COUNTRIES OR AREAS WITH THE LOWEST LIFE EXPECTANCY AT BIRTH, 2005-2010, 2045-2050 AND 2095-2100

2005-2010		2045-2050		2095-2100	
Country or area	Life expectancy (years)	Country or area	Life expectancy (years)	Country or area	Life expectancy (years)
<i>A. Highest life expectancy at birth</i>					
1. Japan	82.7	1. China, Hong Kong SAR	89.0	1. Republic of Korea	95.5
2. China, Hong Kong SAR	82.4	2. Republic of Korea	88.4	2. China, Hong Kong SAR	94.9
3. Switzerland	81.8	3. Japan	88.4	3. Japan	94.2
4. Australia	81.7	4. Singapore	87.7	4. Martinique	94.1
5. Italy	81.5	5. Martinique	87.7	5. Singapore	94.0
6. Iceland	81.4	6. Italy	87.3	6. Guadeloupe	93.5
7. Singapore	81.2	7. Switzerland	87.2	7. Italy	93.3
8. Spain	81.2	8. Australia	87.2	8. Australia	93.2
9. Sweden	81.1	9. Guadeloupe	87.1	9. Switzerland	93.0
10. France	80.9	10. Spain	86.8	10. Spain	92.5
<i>B. Lowest life expectancy at birth</i>					
1. Sierra Leone	44.0	1. Sierra Leone	56.1	1. Sierra Leone	69.4
2. Lesotho	45.6	2. Dem. Rep. of the Congo	60.4	2. Guinea	69.6
3. Central African Republic	46.4	3. Guinea-Bissau	62.0	3. Benin	69.6
4. Botswana	46.5	4. Swaziland	62.3	4. Gambia	70.1
5. Zimbabwe	47.3	5. Guinea	63.4	5. Guinea-Bissau	70.5
6. Swaziland	47.4	6. Côte d'Ivoire	64.0	6. Mauritania	70.9
7. Dem. Rep. of the Congo	48.3	7. Benin	64.2	7. Dem. Rep. of the Congo	71.0
8. Mozambique	48.4	8. Gambia	64.5	8. Ghana	71.6
9. Chad	48.7	9. Angola	64.7	9. Papua New Guinea	72.0
10. Côte d'Ivoire	48.7	10. Somalia	65.0	10. Comoros	72.5
WORLD	68.7	WORLD	75.9	WORLD	81.8

Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2013).  
*World Population Prospects: The 2012 Revision*. New York: United Nations.

NOTE: Only countries or areas with 90,000 persons or more in 2013 are considered.



TABLE S.13. LIFE EXPECTANCY AT BIRTH, BOTH SEXES COMBINED, BY COUNTRY FOR SELECTED PERIODS

Country or area	Life expectancy at birth (years)						
	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2045-2050	2095-2100
<b>World.....</b>	<b>67.1</b>	<b>68.7</b>	<b>70.0</b>	<b>71.0</b>	<b>71.9</b>	<b>75.9</b>	<b>81.8</b>
Afghanistan.....	55.8	58.4	60.7	62.6	64.1	69.1	75.3
Albania.....	75.4	76.3	77.3	78.3	79.3	83.2	88.9
Algeria.....	69.4	70.3	70.9	71.5	72.1	74.6	80.4
Angola.....	47.2	49.6	51.7	53.7	55.6	64.7	75.4
Antigua and Barbuda.....	74.1	75.0	75.9	76.7	77.6	81.7	87.6
Argentina.....	74.3	75.3	76.2	77.1	78.0	81.9	87.8
Armenia.....	72.7	74.0	74.5	75.1	75.8	79.1	84.6
Aruba.....	74.0	74.7	75.4	76.0	76.7	80.1	85.3
Australia.....	80.4	81.7	82.4	83.1	83.8	87.2	93.2
Austria.....	78.8	80.1	81.0	81.8	82.6	85.9	91.9
Azerbaijan.....	67.8	70.1	70.6	71.2	71.7	74.5	80.9
Bahamas.....	73.2	74.3	75.1	76.0	76.8	80.8	86.7
Bahrain.....	75.0	75.8	76.5	77.2	77.9	81.4	87.1
Bangladesh.....	66.4	68.4	70.5	72.4	74.0	80.1	87.3
Barbados.....	73.6	74.5	75.3	76.1	76.9	81.0	87.1
Belarus.....	67.8	69.3	69.8	70.4	71.0	74.0	79.9
Belgium.....	78.3	79.5	80.4	81.3	82.0	85.3	91.0
Belize.....	71.3	72.7	73.8	74.8	76.1	82.8	91.1
Benin.....	56.0	58.2	59.2	60.1	60.9	64.2	69.6
Bhutan.....	62.1	65.7	68.0	70.0	71.7	77.2	84.8
Bolivia (Plurinational State of).....	63.9	65.6	67.1	68.4	69.6	73.5	80.1
Bosnia and Herzegovina.....	74.8	75.5	76.3	77.1	77.9	81.6	87.1
Botswana.....	48.2	46.5	47.4	50.5	55.1	70.1	79.8
Brazil.....	71.0	72.4	73.8	75.1	76.4	81.7	88.3
Brunei Darussalam.....	76.5	77.5	78.4	79.4	80.4	84.3	90.2
Bulgaria.....	72.1	73.0	73.5	74.0	74.6	77.6	83.4
Burkina Faso.....	51.6	54.0	56.1	58.1	60.1	68.2	76.8
Burundi.....	48.9	51.3	53.9	55.9	57.4	68.4	78.6
Cambodia.....	64.5	69.5	71.6	73.5	75.0	80.2	85.6
Cameroon.....	51.6	52.7	54.9	57.0	59.1	68.6	77.2
Canada.....	79.7	80.5	81.4	82.1	82.8	85.8	91.2
Cape Verde.....	71.0	73.2	74.9	76.4	77.8	82.2	87.5
Central African Republic.....	44.1	46.4	49.9	52.8	55.5	67.6	78.1
Chad.....	47.0	48.7	51.0	53.1	54.9	65.5	75.8
Channel Islands.....	78.3	79.5	80.2	81.0	81.7	84.6	90.2
Chile.....	77.9	78.6	79.8	81.0	82.0	85.7	91.6
China.....	73.4	74.4	75.2	76.0	76.7	79.9	85.3
China, Hong Kong SAR.....	81.3	82.4	83.3	84.2	85.0	89.0	94.9
China, Macao SAR.....	78.1	79.2	80.3	81.3	82.2	85.9	91.8
Colombia.....	71.7	72.9	73.9	74.9	75.9	80.6	86.8
Comoros.....	58.5	59.7	60.8	61.8	62.7	66.5	72.5
Congo.....	52.8	55.7	58.6	60.4	62.2	70.1	77.7
Costa Rica.....	78.1	78.8	79.8	80.9	81.7	85.1	90.7
Côte d'Ivoire.....	46.2	48.7	50.5	52.4	54.4	64.0	75.0
Croatia.....	74.9	76.1	77.0	77.8	78.7	82.3	87.9

TABLE S.13. (continued)

Country or area	Life expectancy at birth (years)						
	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2045-2050	2095-2100
Cuba.....	77.2	78.3	79.2	80.1	80.9	84.3	89.8
Curaçao.....	75.0	76.1	77.0	77.9	78.8	82.4	87.6
Cyprus.....	78.3	79.0	79.8	80.6	81.4	84.5	90.0
Czech Republic.....	75.4	76.8	77.6	78.4	79.2	82.6	88.2
Dem. People's Rep. of Korea.....	68.1	68.4	69.9	71.2	72.3	77.2	84.5
Dem. Republic of the Congo.....	47.4	48.3	49.8	51.3	52.8	60.4	71.0
Denmark.....	77.3	78.6	79.3	80.0	80.8	83.9	89.3
Djibouti.....	57.3	59.1	61.6	63.7	65.5	72.1	78.6
Dominican Republic.....	71.1	72.2	73.3	74.4	75.4	80.3	86.9
Ecuador.....	74.2	75.0	76.4	77.6	78.8	83.2	88.7
Egypt.....	69.0	69.9	71.1	72.1	73.0	77.3	84.6
El Salvador.....	70.2	71.3	72.5	73.6	74.7	79.7	86.1
Equatorial Guinea.....	47.9	50.1	52.9	55.0	57.2	68.3	78.5
Eritrea.....	57.4	60.0	62.6	65.1	67.4	74.4	81.8
Estonia.....	71.3	73.6	74.3	75.1	75.8	79.3	84.7
Ethiopia.....	54.0	59.3	63.3	65.9	67.9	74.5	81.3
Fiji.....	68.0	68.8	69.7	70.6	71.4	75.3	82.7
Finland.....	78.3	79.5	80.5	81.2	81.9	85.2	90.8
France.....	79.5	80.9	81.7	82.5	83.2	86.6	92.5
French Guiana.....	75.1	75.9	77.0	78.1	79.3	83.3	89.3
French Polynesia.....	73.2	75.0	76.1	77.2	78.3	83.1	89.6
Gabon.....	59.3	61.3	63.3	64.9	66.3	71.7	79.3
Gambia.....	55.9	57.5	58.7	59.8	60.8	64.5	70.1
Georgia.....	72.6	73.5	74.2	74.9	75.7	79.3	85.0
Germany.....	78.6	79.8	80.7	81.4	82.2	85.4	91.2
Ghana.....	57.5	60.0	61.0	61.9	62.7	66.1	71.6
Greece.....	79.1	79.8	80.7	81.5	82.2	85.3	90.9
Grenada.....	70.9	72.0	72.7	73.4	74.1	77.6	84.3
Guadeloupe.....	77.9	79.4	80.8	81.9	82.9	87.1	93.5
Guam.....	75.9	77.4	78.7	80.0	81.2	85.5	92.1
Guatemala.....	69.0	70.3	72.0	73.4	74.8	80.7	87.5
Guinea.....	51.3	54.5	55.9	57.3	58.6	63.4	69.6
Guinea-Bissau.....	51.9	53.0	54.2	55.4	56.5	62.0	70.5
Guyana.....	63.7	65.2	66.2	67.0	67.6	70.7	76.7
Haiti.....	58.1	60.7	63.0	64.3	65.4	71.5	78.3
Honduras.....	71.0	72.1	73.7	75.1	76.5	82.0	89.5
Hungary.....	72.6	73.8	74.5	75.2	76.0	79.6	85.4
Iceland.....	80.5	81.4	82.0	82.7	83.3	86.4	92.1
India.....	63.1	64.9	66.3	67.5	68.5	72.9	80.6
Indonesia.....	68.1	69.6	70.7	71.7	72.7	77.0	84.5
Iran (Islamic Republic of).....	70.6	72.3	73.9	75.4	76.7	82.4	89.5
Iraq.....	70.4	68.5	69.4	70.2	71.0	74.3	81.0
Ireland.....	77.6	79.6	80.6	81.5	82.3	85.7	91.4
Israel.....	79.6	80.8	81.7	82.5	83.2	86.4	92.4
Italy.....	80.2	81.5	82.3	83.1	83.8	87.3	93.3
Jamaica.....	70.8	72.2	73.5	74.1	74.8	78.0	83.9
Japan.....	81.8	82.7	83.5	84.3	85.0	88.4	94.2
Jordan.....	72.2	73.0	73.8	74.5	75.3	79.0	85.4

TABLE S.13 (continued)

Country or area	Life expectancy at birth (years)						
	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2045-2050	2095-2100
Kazakhstan.....	64.6	65.7	66.4	67.2	67.9	71.2	78.4
Kenya.....	53.0	57.2	61.6	63.1	64.4	71.5	79.4
Kiribati.....	65.5	67.1	68.8	70.2	71.6	77.2	85.1
Kuwait.....	73.4	73.8	74.2	74.8	75.3	78.3	84.2
Kyrgyzstan.....	66.6	66.7	67.5	68.2	68.9	71.9	78.6
Lao People's Dem. Republic.....	63.2	65.8	68.1	70.2	72.1	78.4	85.3
Latvia.....	70.7	71.5	72.1	72.7	73.2	76.3	82.0
Lebanon.....	75.6	78.2	79.8	81.3	82.6	86.3	90.7
Lesotho.....	43.7	45.6	49.5	50.4	52.4	65.0	76.3
Liberia.....	52.4	58.1	60.3	62.1	63.9	70.7	77.9
Libya.....	72.7	74.2	75.2	76.2	77.2	81.7	88.0
Lithuania.....	71.6	71.3	72.1	72.8	73.5	77.0	82.4
Luxembourg.....	78.3	79.5	80.5	81.3	82.0	85.4	91.4
Madagascar.....	60.0	62.2	64.5	66.6	68.5	74.2	81.3
Malawi.....	46.8	51.6	55.1	56.9	58.6	66.0	77.0
Malaysia.....	73.3	74.0	74.9	75.8	76.7	80.9	87.0
Maldives.....	71.8	75.5	77.7	79.4	80.9	85.8	91.4
Mali.....	50.3	52.7	54.8	56.8	58.7	65.7	73.3
Malta.....	77.9	78.8	79.7	80.5	81.4	84.7	90.6
Martinique.....	78.9	80.1	81.3	82.4	83.4	87.7	94.1
Mauritania.....	60.0	60.7	61.5	62.2	62.9	65.9	70.9
Mauritius.....	72.1	72.8	73.5	74.3	75.1	79.0	85.1
Mayotte.....	76.5	77.9	79.0	80.2	81.2	85.4	91.7
Mexico.....	75.0	76.3	77.4	78.5	79.5	83.9	90.0
Micronesia (Fed. States of).....	67.6	68.3	68.9	69.5	70.0	72.4	77.8
Mongolia.....	64.1	66.1	67.4	68.5	69.5	73.9	81.9
Montenegro.....	73.4	74.2	74.8	75.3	75.8	78.3	83.2
Morocco.....	68.7	69.7	70.8	71.9	72.8	76.7	83.6
Mozambique.....	47.6	48.4	50.2	51.8	54.6	67.4	77.4
Myanmar.....	62.8	64.2	65.1	65.9	66.7	70.1	76.3
Namibia.....	53.4	60.1	64.3	65.3	66.3	71.9	79.4
Nepal.....	63.5	65.9	68.2	70.1	71.8	77.5	84.9
Netherlands.....	78.7	80.2	80.9	81.7	82.3	85.2	90.6
New Caledonia.....	74.1	75.2	76.2	77.3	78.4	82.9	88.9
New Zealand.....	79.0	80.2	81.0	81.8	82.5	85.6	91.4
Nicaragua.....	70.9	72.9	74.7	76.2	77.6	82.9	88.8
Niger.....	52.4	55.6	58.1	60.5	62.6	68.6	73.3
Nigeria.....	47.3	50.2	52.3	54.2	56.2	65.4	75.6
Norway.....	79.2	80.6	81.4	82.1	82.7	85.6	91.1
Oman.....	73.3	74.9	76.4	77.6	78.9	83.8	90.0
Pakistan.....	64.5	65.7	66.5	67.2	68.0	71.1	76.8
Panama.....	75.6	76.4	77.5	78.5	79.5	83.4	89.3
Papua New Guinea.....	59.6	61.5	62.3	63.1	63.8	66.7	72.0
Paraguay.....	70.8	71.8	72.2	72.7	73.1	75.8	82.2
Peru.....	71.6	73.1	74.7	76.1	77.4	82.7	88.9
Philippines.....	67.1	67.8	68.6	69.4	70.2	73.6	80.9
Poland.....	74.5	75.5	76.3	77.2	78.0	81.6	87.2
Portugal.....	77.3	78.7	79.8	80.8	81.7	85.3	91.4

TABLE S.13. (continued)

Country or area	Life expectancy at birth (years)						
	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2045-2050	2095-2100
Puerto Rico .....	76.8	77.9	78.8	79.6	80.4	83.3	88.5
Qatar .....	77.0	77.6	78.3	79.0	79.8	83.1	88.5
Republic of Korea .....	77.4	80.0	81.4	82.6	83.7	88.4	95.5
Republic of Moldova .....	67.6	68.2	68.8	69.4	70.0	73.0	79.7
Réunion .....	76.8	78.2	79.5	80.7	81.6	85.5	91.8
Romania .....	71.5	73.1	73.7	74.4	75.1	78.7	84.8
Russian Federation .....	65.0	67.2	67.9	68.5	69.2	72.4	78.9
Rwanda .....	50.1	59.8	63.6	66.0	68.0	74.4	81.3
Saint Lucia .....	72.1	74.0	74.7	75.4	76.2	79.8	85.5
St. Vincent and the Grenadines .....	70.7	71.9	72.4	73.0	73.5	76.4	82.6
Samoa .....	70.1	71.5	73.0	74.4	75.7	81.3	88.1
Sao Tome and Principe .....	63.8	65.5	66.2	66.9	67.6	70.5	76.1
Saudi Arabia .....	73.1	74.3	75.4	76.4	77.4	81.8	87.8
Senegal .....	58.9	62.2	63.3	64.2	65.0	68.2	73.5
Serbia .....	72.4	73.3	74.0	74.6	75.3	78.7	84.6
Seychelles .....	72.1	72.4	73.1	74.0	74.8	79.0	84.7
Sierra Leone .....	40.1	44.0	45.3	46.8	48.2	56.1	69.4
Singapore .....	79.2	81.2	82.2	83.1	83.9	87.7	94.0
Slovakia .....	73.8	74.7	75.3	76.0	76.7	80.2	85.6
Slovenia .....	76.7	78.6	79.5	80.3	81.0	84.1	89.9
Solomon Islands .....	64.4	66.4	67.5	68.6	69.6	73.8	81.2
Somalia .....	51.5	53.2	54.9	56.5	58.1	65.0	73.5
South Africa .....	52.8	52.2	57.1	57.7	59.0	68.2	77.6
South Sudan .....	50.2	52.1	55.0	57.7	59.4	68.5	77.2
Spain .....	79.6	81.2	82.0	82.8	83.5	86.8	92.5
Sri Lanka .....	73.2	73.4	74.2	75.1	75.9	79.9	85.8
State of Palestine .....	71.3	72.2	73.1	74.0	74.8	78.7	85.2
Sudan .....	58.9	60.9	61.9	62.9	63.8	67.7	73.9
Suriname .....	68.1	69.6	70.9	71.9	72.9	76.4	82.3
Swaziland .....	45.8	47.4	49.2	48.7	50.4	62.3	75.7
Sweden .....	80.1	81.1	81.7	82.4	83.1	86.1	91.8
Switzerland .....	80.5	81.8	82.5	83.2	83.9	87.2	93.0
Syrian Arab Republic .....	73.9	75.0	74.4	75.5	76.6	81.5	87.6
Tajikistan .....	64.4	66.3	67.1	67.9	68.6	71.8	78.4
TFYR Macedonia .....	73.8	74.4	75.1	75.9	76.7	80.5	86.4
Thailand .....	71.5	73.3	74.3	75.2	76.2	80.5	86.4
Timor-Leste .....	61.5	64.5	67.3	69.5	71.2	76.9	85.1
Togo .....	53.9	54.7	56.4	57.9	59.4	67.6	76.5
Tonga .....	71.2	71.8	72.6	73.4	74.2	78.1	84.6
Trinidad and Tobago .....	68.7	69.3	69.8	70.3	70.9	73.6	79.9
Tunisia .....	73.7	74.6	75.8	76.9	77.9	82.4	88.1
Turkey .....	71.4	73.4	75.1	76.6	78.0	83.0	89.0
Turkmenistan .....	64.2	64.7	65.4	66.1	66.8	69.9	76.3
Uganda .....	50.5	55.2	59.0	60.8	62.5	71.1	79.7
Ukraine .....	67.5	67.9	68.5	69.0	69.5	71.9	77.5
United Arab Emirates .....	74.8	75.9	76.7	77.6	78.5	82.7	88.6
United Kingdom .....	78.4	79.6	80.4	81.2	82.0	85.0	90.5
United Republic of Tanzania .....	51.5	56.6	61.4	63.1	64.5	72.5	80.6

TABLE S.13 (*continued*)

<i>Country or area</i>	<i>Life expectancy at birth (years)</i>						
	<i>2000-2005</i>	<i>2005-2010</i>	<i>2010-2015</i>	<i>2015-2020</i>	<i>2020-2025</i>	<i>2045-2050</i>	<i>2095-2100</i>
United States of America .....	77.1	78.1	78.9	79.6	80.4	83.5	88.8
United States Virgin Islands .....	78.1	78.9	80.0	81.1	82.0	85.7	91.3
Uruguay .....	75.3	76.4	77.1	77.9	78.7	82.1	87.7
Uzbekistan .....	67.2	67.6	68.2	68.8	69.3	72.0	78.0
Vanuatu.....	68.4	70.0	71.5	72.8	74.0	79.3	86.6
Venezuela (Bolivarian Republic of).....	72.8	73.7	74.5	75.3	76.1	80.1	86.0
Viet Nam.....	74.4	75.1	75.9	76.6	77.4	80.7	86.0
Western Sahara .....	63.9	66.0	67.6	68.9	69.9	73.6	79.9
Yemen.....	61.0	62.0	63.0	63.9	64.7	68.0	73.4
Zambia .....	43.9	50.9	57.7	61.3	63.4	70.4	77.8
Zimbabwe .....	43.1	47.3	59.8	62.5	63.6	71.0	80.8
Other non-specified areas .....	76.9	78.2	79.3	80.3	81.1	84.5	90.3

*Source:* Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2013). *World Population Prospects: The 2012 Revision*. New York: United Nations.

NOTE: Only countries or areas with 90,000 persons or more in 2013 are considered.

TABLE S.14. INFANT MORTALITY RATE BY COUNTRY FOR SELECTED PERIODS

Country or area	Infant mortality rate (infant deaths per 1,000 live births)						
	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2045-2050	2095-2100
<b>World .....</b>	<b>48.3</b>	<b>42.3</b>	<b>36.8</b>	<b>33.1</b>	<b>30.2</b>	<b>18.3</b>	<b>8.2</b>
Afghanistan .....	90.7	78.3	67.3	59.1	52.6	32.1	14.4
Albania .....	20.2	16.1	14.4	12.5	10.9	5.9	2.2
Algeria .....	34.8	29.7	26.4	23.6	21.3	14.3	9.3
Angola .....	116.1	104.3	96.2	87.7	79.4	45.1	17.8
Antigua and Barbuda .....	12.2	10.0	8.5	7.2	6.4	3.6	1.8
Argentina .....	15.0	13.4	11.4	9.8	8.3	5.0	2.4
Armenia .....	27.0	21.0	19.0	16.9	15.1	9.6	4.6
Aruba .....	17.8	16.0	14.8	13.7	12.6	8.4	4.8
Australia .....	5.0	4.4	3.9	3.5	3.1	1.9	0.8
Austria .....	4.5	3.8	3.1	2.7	2.4	1.5	0.8
Azerbaijan .....	52.0	41.1	39.6	35.4	31.7	18.6	7.9
Bahamas .....	11.6	10.0	9.1	8.1	7.2	3.8	1.6
Bahrain .....	9.8	8.0	6.9	6.1	5.4	3.3	2.1
Bangladesh .....	55.4	43.7	32.3	24.7	19.0	7.1	2.1
Barbados .....	13.9	11.6	10.1	8.7	7.4	3.0	1.1
Belarus .....	9.6	6.3	5.6	5.0	4.4	2.6	1.1
Belgium .....	4.3	3.8	3.2	2.8	2.5	1.6	0.9
Belize .....	17.7	15.6	12.9	10.9	8.8	3.5	1.3
Benin .....	82.4	73.8	68.7	64.3	60.5	45.8	26.6
Bhutan .....	50.3	40.8	30.7	23.3	18.7	8.2	2.6
Bolivia (Plurinational State of) .....	55.6	45.6	39.1	32.9	28.1	15.1	6.6
Bosnia and Herzegovina .....	9.9	9.0	7.6	6.6	5.9	3.9	2.2
Botswana .....	51.8	38.9	31.8	26.9	23.0	12.1	1.7
Brazil .....	27.4	23.6	19.5	15.9	13.0	6.4	2.7
Brunei Darussalam .....	6.6	5.1	4.2	3.4	2.7	1.2	0.4
Bulgaria .....	13.2	9.9	9.0	8.1	7.4	5.0	3.1
Burkina Faso .....	90.0	80.4	69.8	61.1	53.5	24.0	7.7
Burundi .....	98.9	93.4	87.0	80.1	74.0	36.0	13.7
Cambodia .....	66.7	51.1	40.6	33.3	27.7	14.9	7.5
Cameroon .....	86.8	82.5	73.5	65.3	58.3	32.9	15.2
Canada .....	5.2	5.2	4.4	3.9	3.6	2.3	1.2
Cape Verde .....	28.0	21.6	17.2	13.9	11.6	6.5	3.5
Central African Republic .....	112.1	105.5	93.3	83.5	74.7	36.1	13.7
Chad .....	110.2	105.3	95.8	86.8	78.1	43.6	17.8
Channel Islands .....	10.3	8.8	8.1	7.5	6.9	4.9	2.4
Chile .....	8.0	7.2	5.9	4.9	4.2	2.6	1.2
China .....	21.3	18.4	13.0	11.3	9.9	4.8	2.3
China, Hong Kong SAR .....	2.3	1.9	1.9	1.7	1.5	1.1	0.7
China, Macao SAR .....	6.5	5.1	4.1	3.4	2.9	1.7	0.9
Colombia .....	20.5	19.1	16.3	13.8	11.7	6.1	2.8
Comoros .....	77.8	72.3	67.2	62.7	58.6	42.7	21.4
Congo .....	79.6	72.9	63.6	56.5	50.3	29.0	14.2
Costa Rica .....	10.5	9.9	8.5	7.2	6.3	3.8	1.7
Côte d'Ivoire .....	93.6	86.6	75.3	65.1	56.0	28.5	7.6
Croatia .....	6.5	5.7	5.1	4.6	4.1	2.6	1.5

TABLE S.14. (continued)

Country or area	Infant mortality rate (infant deaths per 1,000 live births)						
	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2045-2050	2095-2100
Cuba .....	6.1	5.1	4.5	3.9	3.5	2.3	1.3
Curaçao .....	14.7	13.0	11.2	9.7	8.6	5.1	2.6
Cyprus .....	5.6	4.4	3.7	3.2	2.8	1.8	1.0
Czech Republic .....	4.0	3.1	2.6	2.4	2.1	1.4	1.0
Dem. People's Rep. of Korea .....	28.5	27.3	22.0	17.8	14.6	7.5	5.3
Dem. Republic of the Congo .....	119.9	115.9	108.6	102.0	95.3	64.6	28.9
Denmark .....	4.7	3.8	3.4	3.1	2.9	2.1	1.3
Djibouti .....	68.1	63.4	55.3	48.9	43.5	25.5	13.6
Dominican Republic .....	35.0	29.6	25.6	21.8	18.6	9.5	3.9
Ecuador .....	24.9	21.1	17.0	14.0	11.9	6.3	2.8
Egypt .....	29.3	23.5	18.9	15.6	13.3	7.3	5.6
El Salvador .....	22.9	20.6	17.3	14.7	12.5	7.2	3.3
Equatorial Guinea .....	112.2	101.7	88.9	77.1	67.1	31.9	13.0
Eritrea .....	61.8	53.9	41.8	32.0	24.2	9.2	7.2
Estonia .....	7.4	4.8	4.2	3.9	3.7	2.8	1.8
Ethiopia .....	78.2	60.2	49.7	42.5	36.3	20.1	10.4
Fiji .....	19.0	17.9	16.0	14.3	12.8	7.0	1.8
Finland .....	3.3	2.8	2.3	2.1	1.9	1.3	0.8
France .....	4.3	3.7	3.2	2.8	2.5	1.6	0.8
French Guiana .....	15.4	14.0	12.2	10.5	9.2	5.8	2.7
French Polynesia .....	9.4	8.8	6.9	5.7	4.8	2.7	1.3
Gabon .....	57.7	51.2	43.3	38.1	33.2	17.7	9.0
Gambia .....	64.7	60.4	55.3	51.5	48.2	36.3	21.1
Georgia .....	29.0	22.0	19.4	17.0	14.8	8.7	3.9
Germany .....	4.2	3.7	3.1	2.7	2.4	1.6	0.8
Ghana .....	60.9	55.4	51.1	47.5	44.4	32.9	17.6
Greece .....	4.8	4.2	3.6	3.1	2.8	1.9	1.0
Grenada .....	12.0	10.2	8.9	7.9	7.1	4.1	2.4
Guadeloupe .....	8.7	7.0	5.6	4.8	4.2	2.4	1.0
Guam .....	13.5	11.4	9.7	8.3	7.3	4.4	1.8
Guatemala .....	38.7	30.1	23.4	18.9	15.3	6.7	2.6
Guinea .....	95.2	81.0	73.5	67.1	61.4	43.0	23.8
Guinea-Bissau .....	108.1	101.9	93.9	86.1	78.7	53.4	23.0
Guyana .....	35.9	31.0	28.5	26.4	24.5	17.4	7.5
Haiti .....	56.1	48.6	40.2	36.1	32.7	14.4	6.0
Honduras .....	31.2	27.8	22.3	19.0	15.3	6.7	2.3
Hungary .....	7.4	5.6	4.8	4.4	4.1	3.7	3.7
Iceland .....	2.6	2.0	1.8	1.6	1.5	1.0	0.6
India .....	58.3	50.6	43.8	37.8	33.0	17.1	6.6
Indonesia .....	35.0	29.3	25.6	22.5	19.8	9.8	2.4
Iran (Islamic Republic of) .....	26.4	20.7	15.7	12.1	9.4	4.1	1.7
Iraq .....	34.3	32.9	28.1	24.5	21.5	12.3	5.9
Ireland .....	5.5	3.7	2.9	2.4	2.0	1.0	0.4
Israel .....	5.0	3.9	3.3	2.9	2.6	1.6	0.8
Italy .....	4.2	3.4	2.8	2.3	1.9	1.0	0.4
Jamaica .....	26.8	24.4	20.9	18.7	17.0	10.5	4.6
Japan .....	3.0	2.6	2.2	1.9	1.7	1.0	0.5
Jordan .....	22.4	19.7	17.1	14.8	12.8	6.8	2.9

TABLE S.14. (continued)

Country or area	Infant mortality rate (infant deaths per 1,000 live births)						
	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2045-2050	2095-2100
Kazakhstan.....	32.1	27.0	24.6	22.6	20.8	13.0	5.8
Kenya.....	67.9	59.7	51.6	46.3	42.1	23.7	12.1
Kiribati.....	47.4	40.8	34.3	28.9	24.6	11.9	4.7
Kuwait.....	10.2	9.7	8.6	7.7	6.9	4.2	2.1
Kyrgyzstan.....	40.3	36.4	33.1	30.3	27.8	16.1	6.7
Lao People's Dem. Republic.....	58.4	47.3	36.2	28.2	22.2	10.8	5.5
Latvia.....	9.9	7.8	7.3	6.7	6.2	4.5	3.1
Lebanon.....	13.8	10.0	8.3	7.1	6.2	4.0	2.2
Lesotho.....	84.1	75.7	60.1	50.1	42.3	21.9	9.9
Liberia.....	96.9	71.8	61.2	52.2	44.4	17.2	6.6
Libya.....	20.8	16.8	13.8	11.4	9.7	5.9	4.0
Lithuania.....	7.7	6.0	5.4	5.0	4.6	3.5	2.5
Luxembourg.....	5.0	2.3	2.0	1.8	1.6	1.1	0.7
Madagascar.....	58.0	45.5	36.8	29.3	23.5	9.7	4.6
Malawi.....	107.4	95.2	86.1	78.2	71.5	48.0	25.1
Malaysia.....	6.8	4.8	4.1	3.5	2.9	1.2	0.4
Maldives.....	29.7	15.2	10.4	7.8	6.1	2.9	1.5
Mali.....	108.9	100.3	86.7	76.2	67.0	37.6	15.6
Malta.....	7.1	5.8	4.8	4.0	3.3	1.9	1.0
Martinique.....	8.5	7.6	6.2	5.2	4.5	2.3	0.9
Mauritania.....	77.3	76.3	71.7	67.1	63.0	47.2	25.9
Mauritius.....	13.4	13.2	11.5	9.9	8.5	3.6	1.6
Mayotte.....	7.6	5.6	4.2	3.3	2.7	1.5	0.8
Mexico.....	20.5	16.7	14.2	12.1	10.3	5.3	2.1
Micronesia (Fed. States of).....	37.9	34.9	32.7	30.6	28.7	21.2	10.7
Mongolia.....	40.8	30.5	25.8	22.2	18.3	8.6	3.7
Montenegro.....	11.6	10.9	9.6	8.8	8.2	6.5	6.4
Morocco.....	38.0	32.2	26.3	21.8	18.3	9.7	6.7
Mozambique.....	99.8	87.1	74.3	64.3	54.8	29.0	13.9
Myanmar.....	58.4	52.7	48.9	45.4	42.2	29.0	13.1
Namibia.....	57.2	43.2	33.5	29.1	25.4	15.5	8.2
Nepal.....	55.2	44.7	35.5	28.2	22.8	11.9	5.8
Netherlands.....	4.9	4.1	3.6	3.3	3.0	2.0	1.1
New Caledonia.....	17.4	15.1	13.1	11.4	10.1	6.1	2.9
New Zealand.....	5.5	5.0	4.3	3.9	3.5	2.3	1.1
Nicaragua.....	26.4	21.5	16.6	12.9	10.8	5.4	2.5
Niger.....	81.8	63.7	53.6	45.3	38.5	20.8	13.2
Nigeria.....	104.0	89.9	76.3	65.3	57.4	27.6	7.4
Norway.....	3.5	3.0	2.6	2.3	2.1	1.5	0.8
Oman.....	14.6	9.8	7.3	6.2	5.4	3.2	1.7
Pakistan.....	76.6	71.4	65.1	58.7	52.9	31.8	12.1
Panama.....	20.2	17.1	14.6	12.8	11.1	6.4	2.7
Papua New Guinea.....	56.2	50.1	47.6	45.3	43.2	34.6	21.6
Paraguay.....	35.5	32.0	30.4	28.3	26.4	17.1	6.7
Peru.....	27.4	21.0	16.6	13.1	11.0	5.3	2.4
Philippines.....	26.3	23.0	21.0	19.2	17.6	11.0	3.0
Poland.....	7.2	6.1	5.5	4.9	4.5	2.9	1.6
Portugal.....	4.7	3.4	2.8	2.4	2.1	1.3	0.7



TABLE S.14. (continued)

Country or area	Infant mortality rate (infant deaths per 1,000 live births)						
	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2045-2050	2095-2100
Puerto Rico.....	8.0	7.0	6.3	5.7	5.2	3.4	1.9
Qatar .....	9.4	7.5	6.5	5.8	5.2	3.5	2.0
Republic of Korea .....	5.3	4.6	3.4	2.6	2.1	0.9	0.3
Republic of Moldova .....	18.9	15.5	14.0	12.5	11.2	6.8	3.9
Réunion.....	7.6	5.6	4.2	3.3	2.7	1.5	0.8
Romania.....	16.9	12.0	10.5	9.3	8.3	4.6	2.5
Russian Federation.....	16.2	10.7	9.7	9.1	8.6	5.6	4.0
Rwanda .....	90.0	60.3	49.8	42.6	36.4	20.1	10.4
Saint Lucia .....	14.2	11.9	10.5	9.3	8.3	5.7	3.2
St. Vincent and the Grenadines.....	21.3	18.5	16.9	15.6	14.4	9.2	4.6
Samoa.....	25.7	22.4	19.7	17.4	15.7	10.1	4.7
Sao Tome and Principe .....	51.9	46.1	43.5	41.3	39.1	30.0	17.2
Saudi Arabia.....	18.0	14.0	11.2	9.0	7.6	3.8	1.8
Senegal.....	61.2	54.1	49.3	45.3	42.0	29.0	14.9
Serbia .....	14.1	12.4	10.9	9.8	8.8	6.2	5.7
Seychelles .....	10.6	10.2	8.2	6.6	5.8	3.7	2.3
Sierra Leone.....	139.6	127.2	116.7	106.8	97.0	57.2	18.9
Singapore .....	2.5	2.2	1.8	1.5	1.3	0.7	0.4
Slovakia .....	7.3	6.3	5.4	4.9	4.7	4.0	4.0
Slovenia .....	4.0	2.9	2.8	2.5	2.3	1.5	0.9
Solomon Islands.....	51.4	42.9	38.0	33.7	30.0	17.9	7.3
Somalia .....	97.0	89.8	79.5	70.9	64.5	41.1	18.7
South Africa .....	57.2	51.9	38.3	33.5	30.1	18.8	10.2
South Sudan .....	101.4	89.7	78.0	67.5	59.8	33.5	15.2
Spain .....	3.9	3.6	3.1	2.8	2.5	1.6	0.8
Sri Lanka.....	13.1	10.5	9.0	7.8	6.7	3.8	2.1
State of Palestine.....	24.6	22.2	19.2	17.1	15.4	10.4	5.5
Sudan .....	66.8	59.7	55.0	51.3	47.9	34.3	18.0
Suriname .....	24.2	22.2	17.4	15.0	13.2	7.8	4.1
Swaziland.....	86.7	75.9	64.6	57.9	51.7	26.5	10.6
Sweden.....	3.3	2.5	2.3	2.1	1.9	1.3	0.7
Switzerland .....	4.6	4.2	3.6	3.2	2.9	1.7	0.8
Syrian Arab Republic.....	17.8	14.9	17.7	14.4	11.7	5.5	2.3
Tajikistan .....	63.1	56.0	56.8	51.7	46.9	28.5	11.5
TFYR Macedonia.....	12.9	11.9	10.1	8.6	7.4	4.4	2.4
Thailand .....	14.3	11.8	9.9	8.5	7.3	4.3	2.3
Timor-Leste.....	64.0	51.0	39.3	30.9	24.9	11.7	4.7
Togo.....	77.4	74.7	66.4	59.7	53.8	24.4	7.3
Tonga .....	23.5	22.0	20.4	19.0	17.7	12.9	7.1
Trinidad and Tobago.....	28.9	26.6	24.1	22.1	20.2	12.5	6.4
Tunisia .....	23.0	18.7	15.5	12.5	10.9	6.3	3.7
Turkey.....	24.7	16.4	12.0	9.0	7.1	3.3	1.5
Turkmenistan .....	51.8	50.5	46.7	43.3	40.2	26.7	9.9
Uganda.....	79.3	66.8	57.0	50.2	44.7	23.4	11.3
Ukraine.....	14.8	12.6	11.7	11.1	10.6	7.6	5.3
United Arab Emirates.....	9.2	6.9	5.7	4.9	4.3	2.4	1.3
United Kingdom.....	5.3	4.9	4.2	3.6	3.2	1.9	0.8
United Republic of Tanzania.....	76.7	60.6	48.7	42.9	37.8	20.7	10.5

TABLE S.14. (continued)

Country or area	Infant mortality rate (infant deaths per 1,000 live births)						
	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2045-2050	2095-2100
United States of America .....	7.0	6.9	6.1	5.5	4.9	3.2	1.7
United States Virgin Islands.....	11.5	10.6	9.4	8.5	7.8	5.4	2.6
Uruguay .....	14.4	13.1	11.5	10.2	9.0	5.5	2.7
Uzbekistan .....	49.9	47.1	44.0	40.4	37.2	24.2	10.2
Vanuatu .....	34.6	28.7	23.9	20.2	17.3	9.0	3.9
Venezuela (Bolivarian Republic of).....	18.9	17.0	15.0	13.1	11.4	6.5	3.3
Viet Nam.....	19.6	15.8	14.1	12.6	11.2	7.4	4.3
Western Sahara .....	53.0	44.1	37.2	32.3	28.6	18.2	8.4
Yemen.....	68.0	61.3	56.2	51.7	47.9	32.0	14.4
Zambia .....	92.7	78.0	65.5	56.4	49.7	28.8	14.3
Zimbabwe .....	67.4	52.7	37.2	33.4	31.0	19.5	9.7
Other non-specified areas.....	6.1	5.2	4.2	3.5	3.0	1.8	1.0

Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2013).

World Population Prospects: The 2012 Revision. New York: United Nations.

NOTE: Only countries or areas with 90,000 persons or more in 2013 are considered.

TABLE S.15. UNDER-FIVE MORTALITY BY COUNTRY FOR SELECTED PERIODS

Country or area	<i>Under-five mortality (deaths under age five per 1,000 live births)</i>						
	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2045-2050	2095-2100
<b>World.....</b>	<b>68.8</b>	<b>59.1</b>	<b>51.9</b>	<b>46.8</b>	<b>42.8</b>	<b>25.5</b>	<b>10.7</b>
Afghanistan .....	129.1	109.5	92.3	79.5	69.3	39.2	16.8
Albania .....	24.5	17.6	15.7	13.6	11.9	6.6	2.6
Algeria .....	42.6	35.8	31.9	28.4	25.7	17.1	11.1
Angola .....	193.0	170.5	155.7	140.2	125.3	65.2	22.2
Antigua and Barbuda .....	15.2	12.5	10.6	9.1	8.0	4.4	2.2
Argentina .....	17.6	15.7	13.4	11.5	9.9	5.9	2.9
Armenia .....	30.2	23.7	21.5	19.2	17.2	11.1	5.4
Aruba .....	20.8	18.7	17.2	16.0	14.8	10.1	5.7
Australia .....	6.0	5.3	4.6	4.1	3.7	2.2	1.0
Austria .....	5.4	4.6	3.8	3.3	3.0	1.9	0.9
Azerbaijan .....	61.3	47.6	47.1	42.1	37.8	22.4	9.6
Bahamas .....	17.5	14.9	13.3	11.8	10.3	5.1	2.1
Bahrain .....	11.8	10.6	9.3	8.2	7.2	4.4	2.7
Bangladesh .....	73.9	56.0	41.8	32.1	24.9	9.6	2.9
Barbados .....	16.4	13.4	11.6	9.9	8.3	3.3	1.2
Belarus.....	12.2	8.1	7.3	6.6	5.8	3.4	1.5
Belgium .....	5.4	4.7	3.9	3.4	3.1	2.0	1.1
Belize.....	21.2	18.5	15.4	13.1	10.5	4.3	1.5
Benin .....	131.4	116.1	108.2	101.4	95.4	71.6	38.7
Bhutan .....	79.9	63.3	48.0	36.7	29.7	13.4	4.4
Bolivia (Plurinational State of).....	71.5	60.4	51.8	43.6	37.2	19.8	8.5
Bosnia and Herzegovina .....	11.8	10.6	9.0	7.7	7.0	4.6	2.6
Botswana .....	69.6	50.5	40.7	33.6	28.1	14.2	2.3
Brazil .....	33.7	29.2	24.2	19.9	16.3	8.0	3.4
Brunei Darussalam .....	7.9	6.1	4.9	3.9	3.0	1.3	0.4
Bulgaria .....	15.8	11.8	10.8	9.7	8.8	6.0	3.7
Burkina Faso.....	173.0	156.5	136.9	119.7	104.2	44.1	12.1
Burundi .....	160.1	150.7	139.4	127.4	116.4	49.8	17.2
Cambodia.....	86.3	64.0	51.1	42.1	35.3	19.1	9.7
Cameroon .....	137.6	130.6	115.5	101.1	88.6	44.8	19.1
Canada .....	6.1	6.0	5.1	4.6	4.1	2.7	1.4
Cape Verde.....	33.9	25.7	20.2	16.1	13.4	7.5	4.0
Central African Republic.....	182.8	172.1	150.4	133.2	117.5	50.0	17.5
Chad .....	181.3	172.3	154.8	138.8	123.5	62.8	22.4
Channel Islands .....	11.9	10.2	9.4	8.7	8.1	5.8	2.8
Chile .....	9.8	8.8	7.2	6.0	5.2	3.1	1.5
China .....	24.6	21.0	16.4	14.2	12.2	5.7	2.7
China, Hong Kong SAR .....	3.9	3.1	2.8	2.4	2.2	1.5	1.0
China, Macao SAR.....	8.7	6.9	5.5	4.5	3.9	2.3	1.2
Colombia .....	28.8	26.4	22.7	19.3	16.3	8.5	3.6
Comoros .....	108.8	100.1	92.2	85.0	78.7	54.0	25.2
Congo .....	125.7	113.8	97.5	85.1	74.3	38.2	18.5
Costa Rica.....	12.3	11.5	9.9	8.5	7.5	4.5	2.1
Côte d'Ivoire .....	133.7	122.6	107.5	94.1	81.8	41.7	10.4
Croatia .....	7.6	6.8	6.1	5.5	5.0	3.2	1.8
Cuba .....	7.7	6.5	5.7	5.0	4.4	3.0	1.7
Curaçao.....	17.4	15.4	13.3	11.5	10.2	6.1	3.1
Cyprus .....	6.7	5.2	4.4	3.8	3.3	2.2	1.2
Czech Republic.....	5.0	3.9	3.3	2.9	2.7	1.8	1.2
Dem. People's Rep. of Korea.....	36.3	34.6	27.9	22.5	18.5	9.4	6.3

TABLE S.15. (continued)

Country or area	Under-five mortality (deaths under age five per 1,000 live births)						
	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2045-2050	2095-2100
Dem. Republic of the Congo .....	201.5	193.9	180.0	167.5	155.1	99.6	37.9
Denmark .....	5.6	4.5	4.0	3.7	3.4	2.5	1.5
Djibouti .....	105.5	97.5	83.4	72.3	62.6	32.7	17.1
Dominican Republic .....	38.4	32.8	28.5	24.4	20.9	10.8	4.6
Ecuador .....	30.0	25.8	21.0	17.3	14.8	7.9	3.4
Egypt .....	38.2	30.0	24.2	19.9	16.9	9.2	6.7
El Salvador .....	29.8	25.4	21.5	18.2	15.6	9.0	4.0
Equatorial Guinea .....	185.1	165.4	142.9	122.0	104.3	43.1	16.7
Eritrea .....	83.8	71.7	55.7	42.5	32.0	11.6	8.8
Estonia .....	9.4	6.1	5.4	5.1	4.8	3.6	2.3
Ethiopia .....	122.8	91.6	73.6	60.7	50.3	25.4	13.1
Fiji .....	23.8	22.5	19.9	17.6	15.7	8.2	2.0
Finland .....	4.0	3.5	2.9	2.6	2.4	1.6	1.0
France .....	5.2	4.5	3.9	3.4	3.1	1.9	0.9
French Guiana .....	18.0	16.3	14.2	12.4	10.9	7.0	3.2
French Polynesia .....	10.2	9.6	7.6	6.2	5.4	3.1	1.5
Gabon .....	87.6	76.7	65.1	56.7	48.8	23.9	10.4
Gambia .....	123.1	109.4	100.4	93.2	86.8	63.2	32.3
Georgia .....	32.0	25.0	22.1	19.4	16.9	10.1	4.5
Germany .....	5.1	4.5	3.8	3.3	2.9	1.9	1.0
Ghana .....	93.7	83.9	77.5	72.2	67.5	49.6	24.7
Greece .....	5.6	4.9	4.2	3.7	3.3	2.2	1.2
Grenada .....	16.4	13.9	12.2	10.9	9.7	5.6	3.1
Guadeloupe .....	10.0	7.8	6.3	5.4	4.7	2.7	1.1
Guam .....	15.7	13.2	11.2	9.6	8.5	5.1	2.0
Guatemala .....	48.6	39.6	31.1	25.1	20.3	9.1	3.4
Guinea .....	161.2	139.5	127.1	116.0	106.0	72.7	36.1
Guinea-Bissau .....	179.6	168.1	155.8	143.6	132.0	88.7	34.1
Guyana .....	44.4	37.7	34.5	31.7	29.3	20.4	8.4
Haiti .....	92.7	80.6	66.8	59.6	53.2	22.2	8.3
Honduras .....	44.7	40.1	32.4	27.6	22.3	9.4	3.0
Hungary .....	8.7	6.6	5.8	5.3	5.0	4.5	4.5
Iceland .....	3.4	2.9	2.6	2.4	2.2	1.5	0.8
India .....	77.4	64.4	55.8	48.0	41.9	21.4	8.1
Indonesia .....	43.0	35.4	30.7	26.7	23.3	11.1	2.7
Iran (Islamic Republic of) .....	37.1	28.3	21.7	16.8	13.0	5.7	2.3
Iraq .....	41.3	37.6	32.3	28.2	24.7	14.4	7.0
Ireland .....	6.5	4.5	3.6	2.9	2.4	1.2	0.5
Israel .....	6.2	4.9	4.1	3.7	3.3	2.0	1.0
Italy .....	5.0	4.1	3.3	2.7	2.3	1.1	0.4
Jamaica .....	32.2	28.9	24.8	22.2	20.3	12.6	5.6
Japan .....	4.1	3.5	3.0	2.6	2.3	1.4	0.6
Jordan .....	26.2	22.8	19.8	17.2	14.9	7.9	3.4
Kazakhstan .....	38.5	32.8	29.9	27.5	25.4	15.9	7.0
Kenya .....	103.0	90.4	77.0	67.6	60.0	30.2	15.7
Kiribati .....	61.1	51.1	42.1	34.9	29.4	13.8	5.4
Kuwait .....	13.3	12.5	11.2	10.0	8.9	5.3	2.6
Kyrgyzstan .....	48.6	45.7	41.6	38.1	34.9	20.3	8.4
Lao People's Dem. Republic .....	75.5	58.6	44.8	34.0	26.2	12.7	6.4
Latvia .....	12.3	9.4	8.7	8.0	7.4	5.4	3.7
Lebanon .....	16.0	11.6	9.7	8.3	7.2	4.6	2.6
Lesotho .....	115.9	104.9	82.0	66.7	54.8	26.7	11.7

TABLE S.15 (continued)

Country or area	Under-five mortality (deaths under age five per 1,000 live births)						
	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2045-2050	2095-2100
Liberia .....	139.8	99.9	85.2	73.0	62.2	23.9	9.0
Libya.....	24.2	19.5	16.2	13.5	11.5	7.0	4.7
Lithuania.....	9.8	7.4	6.7	6.1	5.7	4.4	3.1
Luxembourg .....	6.1	3.3	3.1	2.8	2.5	1.7	0.9
Madagascar.....	86.8	67.4	54.5	43.1	34.3	13.8	6.2
Malawi.....	159.2	135.7	118.5	104.9	93.9	58.9	29.2
Malaysia .....	8.7	6.1	5.1	4.3	3.6	1.3	0.5
Maldives .....	37.3	18.3	12.6	9.5	7.5	3.6	1.8
Mali .....	205.1	187.3	164.6	145.0	127.3	68.5	23.7
Malta.....	9.3	7.9	6.7	5.7	5.0	3.1	1.5
Martinique .....	10.0	8.9	7.3	6.1	5.3	2.7	1.0
Mauritania .....	116.5	113.9	107.2	100.5	94.5	70.4	36.4
Mauritius .....	16.1	15.2	13.1	11.2	9.5	3.9	1.7
Mayotte.....	9.0	6.6	4.8	3.7	3.0	1.6	0.9
Mexico.....	24.8	20.4	17.3	14.8	12.6	6.6	2.6
Micronesia (Fed. States of).....	47.5	43.1	40.0	37.2	34.7	24.9	12.4
Mongolia .....	49.4	37.0	31.4	26.9	22.3	10.6	4.6
Montenegro .....	12.7	11.7	10.4	9.6	8.9	7.3	7.2
Morocco.....	46.8	39.2	32.0	26.5	22.3	11.8	7.9
Mozambique.....	157.8	136.4	115.6	98.6	81.9	38.4	18.0
Myanmar .....	78.3	69.3	63.4	58.0	53.2	35.0	15.2
Namibia .....	75.0	55.8	42.0	35.7	30.7	18.3	9.5
Nepal .....	73.4	57.1	43.9	34.1	27.1	14.0	6.9
Netherlands.....	5.9	4.9	4.3	3.9	3.6	2.4	1.3
New Caledonia .....	20.4	17.5	15.2	13.2	11.6	7.1	3.3
New Zealand.....	6.8	6.2	5.5	4.9	4.4	2.9	1.4
Nicaragua.....	32.2	25.9	20.1	15.7	13.1	6.7	3.1
Niger.....	191.1	149.0	126.6	106.2	89.1	43.7	21.6
Nigeria.....	171.8	142.2	122.2	105.9	93.3	44.0	10.6
Norway .....	4.5	3.7	3.1	2.8	2.6	1.8	1.0
Oman .....	17.9	11.8	8.9	7.6	6.6	4.0	2.1
Pakistan .....	89.4	77.7	71.0	64.2	58.0	35.3	13.7
Panama .....	25.4	21.5	18.5	16.2	14.2	8.1	3.4
Papua New Guinea .....	75.1	65.8	62.0	58.6	55.6	43.2	25.8
Paraguay .....	42.6	38.5	36.6	34.1	31.7	20.6	8.2
Peru.....	40.4	32.6	26.2	20.6	17.2	8.1	3.2
Philippines.....	34.9	30.2	27.4	24.9	22.6	13.7	3.4
Poland.....	8.4	7.0	6.3	5.7	5.2	3.4	1.9
Portugal .....	6.2	4.3	3.5	3.0	2.6	1.7	0.9
Puerto Rico.....	9.7	9.1	8.1	7.2	6.6	4.3	2.3
Qatar .....	11.5	9.2	7.9	7.0	6.3	4.2	2.4
Republic of Korea.....	6.8	5.9	4.3	3.3	2.6	1.1	0.4
Republic of Moldova .....	23.3	19.2	17.3	15.5	13.9	8.4	4.8
Réunion .....	9.0	6.6	4.8	3.7	3.0	1.6	0.9
Romania.....	20.0	14.2	12.5	11.1	9.9	5.6	3.0
Russian Federation .....	19.6	13.2	11.9	11.2	10.6	7.0	4.9
Rwanda.....	145.4	91.9	73.8	61.0	50.4	25.4	13.2
Saint Lucia.....	19.2	16.0	14.2	12.7	11.3	7.6	4.1
St. Vincent and the Grenadines.....	26.8	23.4	21.4	19.8	18.2	11.6	5.6
Samoa.....	31.1	26.8	23.4	20.7	18.6	11.9	5.6
Sao Tome and Principe.....	77.4	67.1	62.6	58.6	54.8	39.6	22.0
Saudi Arabia .....	20.8	15.4	12.3	10.0	8.4	4.3	2.1

TABLE S.15. (continued)

Country or area	Under-five mortality (deaths under age five per 1,000 live births)						
	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2045-2050	2095-2100
Senegal .....	114.1	82.1	74.9	68.9	63.7	43.5	20.7
Serbia .....	16.8	14.7	12.9	11.6	10.4	7.4	6.7
Seychelles .....	13.4	12.7	10.2	8.4	7.3	4.7	2.8
Sierra Leone .....	227.7	201.8	186.6	172.3	158.0	95.8	28.5
Singapore .....	3.3	2.8	2.3	1.9	1.6	0.9	0.5
Slovakia .....	8.9	7.6	6.6	6.0	5.7	4.9	4.8
Slovenia .....	4.9	3.6	3.4	3.1	2.8	1.9	1.1
Solomon Islands .....	67.3	54.3	47.4	41.3	36.4	20.9	8.5
Somalia .....	160.7	147.0	131.2	116.8	105.3	61.1	21.9
South Africa .....	76.7	71.7	50.8	42.8	37.7	22.7	12.0
South Sudan .....	164.9	143.2	122.8	104.5	91.0	45.6	19.1
Spain .....	5.2	4.8	4.1	3.6	3.3	2.0	1.0
Sri Lanka .....	16.4	13.1	11.3	9.8	8.4	4.7	2.5
State of Palestine .....	28.9	25.8	23.0	20.5	18.4	12.5	6.6
Sudan .....	106.1	93.3	86.2	79.5	73.3	48.0	21.1
Suriname .....	31.9	29.5	23.2	20.2	17.6	10.3	5.2
Swaziland .....	127.7	113.5	92.0	80.6	70.5	33.8	12.9
Sweden .....	4.0	3.2	3.0	2.7	2.5	1.7	0.9
Switzerland .....	5.5	4.9	4.2	3.7	3.3	2.0	0.9
Syrian Arab Republic .....	20.8	17.4	20.6	16.8	13.7	6.5	2.7
Tajikistan .....	82.4	72.5	73.0	66.3	60.1	36.2	14.4
TFYR Macedonia .....	13.6	12.5	10.7	9.1	7.8	4.8	2.7
Thailand .....	16.6	13.7	11.6	9.9	8.5	5.0	2.8
Timor-Leste .....	87.2	66.7	49.1	37.5	29.6	13.6	5.5
Togo .....	123.7	115.6	103.1	93.0	84.0	37.3	10.3
Tonga .....	28.2	26.3	24.4	22.6	21.0	15.3	8.4
Trinidad and Tobago .....	36.5	33.5	30.5	27.9	25.5	15.8	7.9
Tunisia .....	25.6	20.4	17.0	13.9	12.1	7.2	4.4
Turkey .....	34.1	23.0	17.6	13.3	10.6	4.8	2.0
Turkmenistan .....	65.9	64.3	59.5	55.2	51.2	33.8	12.3
Uganda .....	123.5	102.1	86.1	74.1	64.3	30.0	14.5
Ukraine .....	18.1	15.1	13.9	13.2	12.7	9.2	6.3
United Arab Emirates .....	10.7	8.1	6.7	5.8	5.0	2.8	1.6
United Kingdom .....	6.3	5.7	4.9	4.2	3.7	2.2	1.0
United Republic of Tanzania .....	118.8	91.6	72.0	61.5	52.7	26.4	13.5
United States of America .....	8.3	8.0	7.1	6.4	5.8	3.8	2.1
United States Virgin Islands .....	13.4	12.3	10.9	9.9	9.1	6.2	3.0
Uruguay .....	17.3	15.9	14.1	12.5	11.1	6.8	3.2
Uzbekistan .....	60.0	57.0	53.3	49.0	45.1	29.4	12.3
Vanuatu .....	42.5	34.6	28.4	23.7	20.2	10.5	4.5
Venezuela (Bolivarian Republic of) ..	24.3	21.9	19.4	16.9	14.7	8.5	4.2
Viet Nam .....	25.0	22.8	20.4	18.3	16.3	10.6	5.8
Western Sahara .....	69.8	56.1	46.1	39.4	34.5	21.4	9.8
Yemen .....	93.7	83.2	76.3	70.2	64.9	42.8	18.2
Zambia .....	143.6	121.6	101.8	85.0	73.6	38.0	18.1
Zimbabwe .....	96.7	75.9	52.8	45.7	41.6	25.2	12.6
Other non-specified areas .....	7.8	6.5	5.3	4.3	3.7	2.2	1.2

Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2013). *World Population Prospects: The 2012 Revision*. New York: United Nations

NOTE: Only countries or areas with 90,000 persons or more in 2013 are considered.