Population Division
Department of Economic and Social Affairs
United Nations Secretariat

Replacement Migration

United Nations

ST/ESA/SER.A/206

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Replacement Migration:

Is It a Solution to Declining and Ageing Populations ?

NOTE

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The designations "developed" and "developing" countries and "more developed" and "less developed" regions are intended for statistical convenience and do not necessarily express a judgement about the stage reached by a particular country or area in the development process.

The term "country" as used in the text of this publication also refers, as appropriate, to territories or areas.

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PREFACE

The Population Division of the Department of Economic and Social Affairs at the United Nations Secretariat is responsible for providing the international community with up-to-date and scientifically objective information on population and development. The Population Division provides guidance to the General Assembly of the United Nations, the Economic and Social Council and the Commission on Population and Development on population and development issues. The Division undertakes regular studies on population levels and trends, population estimates and projections, population policies and the interrelationships between population and development.

In particular, the Population Division is concerned with the following substantive areas: patterns of mortality, fertility and international and internal migration, including levels and trends, their causes and consequences, and socio-economic, geographic and gender differentials; spatial distribution of population between urban and rural areas and among cities; estimates and projections of population size, age and sex structure, spatial distribution and demographic indicators for all countries of the world; population and development policies at the national and international levels; and the relationship between socio-economic development and population change.

The work of the Population Division is published in a variety of formats, including electronically, in order to meet the needs of diverse audiences. These publications and materials are used by Governments; by national and international organizations; by research institutions and individuals engaged in social and economic planning, research and training; and by the general public.

Replacement Migration: Is it a Solution to Declining and Ageing Populations ? may also be accessed on the Population Division World Wide Web site at *www.un.org/esa/population/publications.htm*. For further information, please contact the office of Mr. Joseph Chamie, Director, Population Division, United Nations, New York 10017, USA.

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Symbols of United Nations documents are composed of capital letters combined with figures.

Various symbols have been used in the tables throughout this report, as follows:

Two dots (..) indicate that data are not available or are not separately reported.
An em dash (—) indicates that the population is less than 500 persons.
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 beginning year to 1 July of the end year.

The following abbreviations are used in the present report:

ASR	active support ratio
EC	European Community
EU	European Union
PSR	potential support ratio
TFR	total fertility rate

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

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

The European Union comprises 15 countries: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden and United Kingdom of Great Britain and Northern Ireland.

Europe comprises 47 countries and areas: Albania, Andorra, Austria, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Channel Islands, Croatia, Czech Republic, Denmark, Estonia, Faeroe Islands, Finland, France, Germany, Gibraltar, Greece, Holy See, Hungary, Iceland, Ireland, Isle of Man, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Monaco, Netherlands, Norway, Poland, Portugal, Republic of Moldova, Romania, Russian Federation, San Marino, Slovakia, Slovenia, Spain, Sweden, Switzerland, The former Yugoslav Republic of Macedonia, Ukraine, United Kingdom of Great Britain and Northern Ireland, and Yugoslavia.

EXECUTIVE SUMMARY

The United Nations Population Division monitors fertility, mortality and migration trends for all countries of the world, as a basis for producing the official United Nations population estimates and projections. Among the demographic trends revealed by those figures, two are particularly salient: population decline and population ageing.

Focusing on these two striking and critical trends, the present study addresses the question of whether replacement migration is a solution to declining and ageing populations. Replacement migration refers to the international migration that would be needed to offset declines in the size of population and declines in the population of working age, as well as to offset the overall ageing of a population.

The study computes the size of replacement migration and investigates the possible effects of replacement migration on the population size and age structure for a range of countries that have in common a fertility pattern below the replacement level. Eight countries are examined: France, Germany, Italy, Japan, Republic of Korea, Russian Federation, the United Kingdom of Great Britain and Northern Ireland and the United States of America. Two regions are also included: Europe and the European Union. The time period covered is roughly half a century, from 1995 to 2050.

According to the United Nations population projections (medium variant), Japan and virtually all the countries of Europe are expected to decrease in population size over the next 50 years. For example, the population of Italy, currently 57 million, is projected to decline to 41 million by 2050. The population of the Russian Federation is expected to decrease from 147 million to 121 million between 2000 and 2050. Similarly, the population of Japan, currently 127 million, is projected to decline to 105 million by 2050.

In addition to the decrease in population size, Japan and the countries of Europe are undergoing a relatively rapid ageing process. In Japan, for example, over the next half century the median age of the population is expected to increase by about eight years, from 41 to 49 years. In addition, the proportion of the Japanese population 65 years or older is expected to increase from its current 17 per cent to 32 per cent. Similarly, in Italy the median age of the population is expected to increase from 41 years to 53 years, and the proportion of the population 65 years or older is projected to rise from 18 per cent to 35 per cent.

Building upon these estimates and projections, the present study considers six different scenarios with regard to the international migration streams needed to achieve specific population objectives or outcomes for the eight countries and two regions mentioned above. These are not meant to be recommendations in any way, but illustrations of hypothetical scenarios. The six scenarios are described below:

Scenario I. This scenario is based on the medium variant of the projections from the United Nations *World Population Prospects: 1998 Revision* (henceforth referred to as the *1998 Revision*).

Scenario II. This scenario is based on the medium variant of the *1998 Revision*, amended by assuming zero migration after 1995.

Scenario III. This scenario computes and assumes the migration required to maintain the size of the total population at the highest level it would reach in the absence of migration after 1995.

Scenario IV. This scenario computes and assumes the migration required to maintain the size of the working-age population (15 to 64 years) at the highest level it would reach in the absence of migration after 1995.

Scenario V. This scenario computes and assumes the migration required to prevent the ratio of the size of the population aged 15-64 to the size of the population aged 65 or over, called the potential support ratio (PSR), from declining below the value of 3.0.

Scenario VI. This scenario computes and assumes the migration required to maintain the potential support ratio (PSR), at the highest level it would reach in the absence of migration after 1995.

The total and average annual numbers of migrants for the period 2000-2050 for each scenario are presented in table 1. Scenario I shows the numbers of migrants assumed for the eight countries and two regions in the medium variant of the United Nations projections. For example, the total number of migrants for the United States for the fifty-year period is 38 million; and the average annual number is 760,000. Scenario II assumes zero migration for the entire period; the resulting populations and age structures are given in the text of this report.

TABLE 1. NET NUMBER OF MIGRANTS BY COUNTRY OR REGION AND SCENARIO, 2000-2050
(*Thousands*)

Scenario	*I*	*II*	*III*	*IV*	*V*	*VI*
Country or region	*Medium variant*	*Medium variant with zero migration*	*Constant total population*	*Constant age group 15-64*	*Ratio 15-64/65+ not less than 3.0*	*Constant ratio 15-64/65 years or older*
			A. Total number			
France	325	0	1 473	5 459	16 037	89 584
Germany	10 200	0	17 187	24 330	40 481	181 508
Italy	310	0	12 569	18 596	35 088	113 381
Japan	0	0	17 141	32 332	94 837	523 543
Republic of Korea	-350	0	1 509	6 426	11 595	5 128 147
Russian Federation	5 448	0	24 896	35 756	26 604	253 379
United Kingdom	1 000	0	2 634	6 247	13 674	59 722
United States	38 000	0	6 384	17 967	44 892	592 572
Europe	18 779	0	95 869	161 346	235 044	1 356 932
European Union	13 489	0	47 456	79 375	153 646	673 999
			B. Average annual number			
France	7	0	29	109	321	1 792
Germany	204	0	344	487	810	3 630
Italy	6	0	251	372	702	2 268
Japan	0	0	343	647	1 897	10 471
Republic of Korea	-7	0	30	129	232	102 563
Russian Federation	109	0	498	715	532	5 068
United Kingdom	20	0	53	125	273	1 194
United States	760	0	128	359	898	11 851
Europe	376	0	1 917	3 227	4 701	27 139
European Union	270	0	949	1 588	3 073	13 480

Except for the United States, the numbers of migrants needed to maintain the size of the total population (scenario III) are considerably larger than those assumed in the medium variant of the United Nations projections (scenario I). In Italy, for example, the total number of migrants is 12.6 million (or 251 thousand per year) in scenario III versus 0.3 million (or 6 thousand per year) in scenario I. For the European Union, the respective numbers are 47 million versus 13 million (or 949 thousand per year versus 270 thousand per year).

In scenario IV, in order to keep constant the size of the working-age population (15 to 64 years), the numbers of migrants are even larger than those in scenario III. In Germany, for instance, the total number of migrants is 24 million (or 487 thousand per year) in scenario IV versus 17 million (or 344 thousand per year) in scenario III.

Figure 1 provides a standardized comparison by presenting the migration flows expressed in per million inhabitants in 2000. This comparison shows that relative to country size the number of migrants needed between 2000-2050 to maintain the size of the working-age population (scenario IV) is the highest for Italy, with 6,500 annual immigrants per million inhabitants, followed by Germany, with 6,000 annual immigrants per million inhabitants. Among the countries and regions studied in this report, the United States would require the smallest number of immigrants, approximately 1,300 per million inhabitants, to prevent the decline of its working-age population.

In scenario V, to prevent the potential support ratio from reaching below 3.0, the dates when migrants would be needed would occur later than in scenario IV, but the numbers of migrants that would be needed are much larger than that in scenario IV. In France, for instance, the total number of migrants is 16 million in scenario V versus 5 million in scenario IV, and in Japan it is 95 million versus 32 million.

The numbers in scenario VI, which keeps the potential support ratio constant, are extraordinarily large. In Japan, for example, the total number of migrants in scenario VI is 524 million (or 10.5 million per year). For the European Union, the total number of migrants in this scenario is 674 million (or 13 million per year).

Readers should keep in mind that the results of scenario VI are for illustrative purposes only. Given the assumption that the current age structure of the population would remain unchanged in the future, the resulting large number of migrants needed should be considered totally unrealistic.

Major findings of this study include the following:

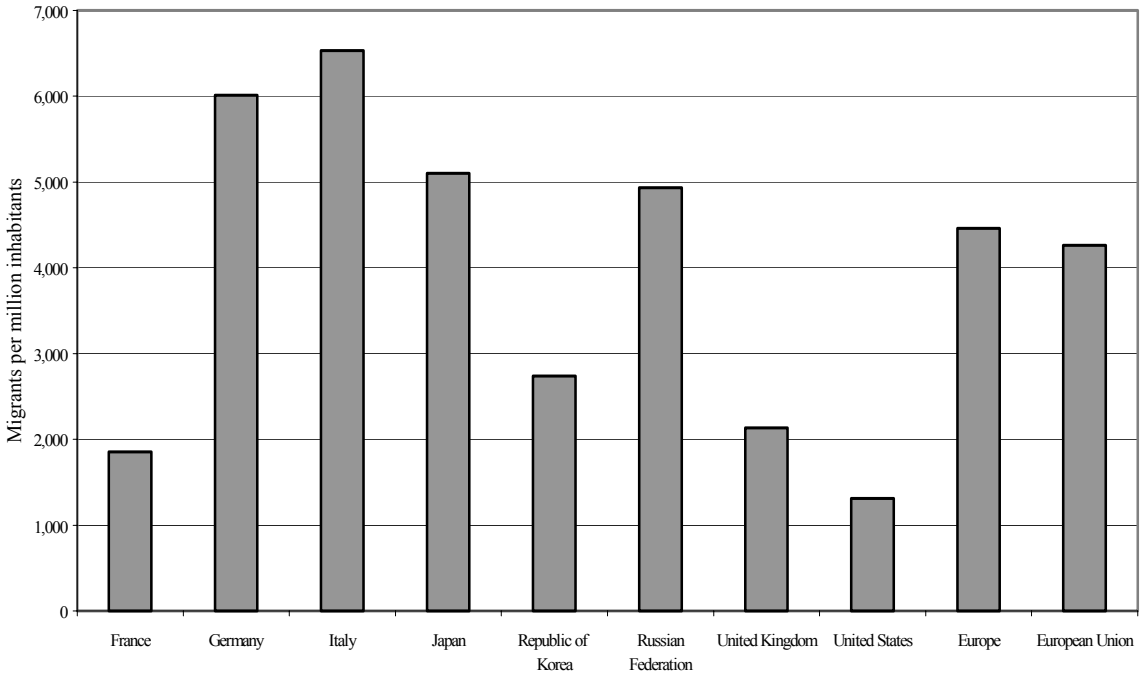
1. During the first half of the twenty-first century, the populations of most developed countries are projected to become smaller and older as a result of below-replacement fertility and increased longevity.

2. In the absence of migration, the declines in population size will be even greater than those projected, and population ageing will be more rapid.

3. Although fertility may rebound in the coming decades, few believe that fertility in most developed countries will recover sufficiently to reach replacement level in the foreseeable future, thus making population decline inevitable in the absence of replacement migration.

4. The projected population decline and population ageing will have profound and far-reaching consequences, forcing Governments to reassess many established economic, social and political policies and programmes, including those relating to international migration.

Figure 1. Average annual net number of migrants between 2000 and 2050 to maintain size of working-age population, per million inhabitants in 2000



5. For France, the United Kingdom, the United States and the European Union, the numbers of migrants needed to offset population decline are less than or comparable to recent past experience. While this is also the case for Germany and the Russian Federation, the migration flows in the 1990s were relatively large due to reunification and dissolution, respectively.

6. For Italy, Japan, the Republic of Korea and Europe, a level of immigration much higher than that experienced in the recent past would be needed to offset population decline.

7. The numbers of migrants needed to offset declines in the working-age population are significantly larger than those needed to offset total population decline. Whether those larger numbers of migrants are within the realm of options open to Governments depends to a great extent on the social, economic and political circumstances of the particular country or region.

8. If retirement ages remain essentially where they are today, increasing the size of the working-age population through international migration is the only option in the short to medium term to reduce declines in the potential support ratio.

9. The levels of migration needed to offset population ageing (i.e., maintain potential support ratios) are extremely high, and in all cases entail vastly more immigration than has occurred in the past.

10. Maintaining potential support ratios at current levels through replacement migration alone seems out of reach, because of the extraordinarily large numbers of migrants that would be required.

11. Possible future increases in economic activity rates for people aged less than 65 years cannot, on their own, be a solution to the decline in the active support ratios caused by population ageing.

12. In most cases, the potential support ratios could be maintained at current levels by increasing the upper limit of the working-age population to roughly 75 years of age.

13. The new challenges being brought about by declining and ageing populations will require objective, thorough and comprehensive reassessments of many established economic, social and political policies and programmes. Such reassessments will need to incorporate a long-term perspective. Critical issues to be addressed in those reassessments include (a) appropriate ages for retirement; (b) levels, types and nature of retirement and health-care benefits for the elderly; (c) labour-force participation; (d) assessed amounts of contributions from workers and employers to support retirement and health-care benefits for the increasing elderly population; and (e) policies and programmes relating to international migration, in particular replacement migration, and the integration of large numbers of recent migrants and their descendants.

I. OVERVIEW OF THE ISSUES

As part of its regular work programme, the United Nations Population Division continuously monitors fertility, mortality and migration trends for all countries of the world, as a basis for producing the official United Nations population estimates and projections. Among the demographic trends revealed by those figures, two are particularly salient: population decline and population ageing.

Focusing on these two striking and critical trends, the present study addresses the question of whether replacement migration is a solution to population decline and population ageing. Replacement migration refers to the international migration that would be needed to offset declines in the size of population and declines in the population of working age, as well as to offset the overall ageing of a population.

Eight countries and two regions that are treated as individual countries have been selected for this study. All of them are relatively large countries that have below-replacement fertility. The countries and regions are France, Germany, Italy, Japan, Republic of Korea, Russian Federation, the United Kingdom of Great Britain and Northern Ireland, the United States of America, Europe and the European Union. Through the technique of population projection, calculations are made of the amount of replacement migration that would be necessary for each of the eight countries and two regions to offset the expected declines in the size of the total population and working-age population, as well as to offset the overall ageing of the population.

The process of population ageing, which is the transformation of the age structure to relatively greater proportions in the older age groups, is being brought about by declining fertility and increased longevity. Since fertility and mortality levels have to some extent declined in most populations, population ageing is a nearly universal process. Where fertility has dropped to particularly low levels, such as in Europe and Japan, the ageing of populations is reaching unprecedented proportions.

In a smaller, yet significant number of countries, fertility has dropped so much that deaths exceed births, resulting in declining populations. Table 2 shows the list of countries that are projected to have smaller populations in 2050 compared to 2000 and the extent to which they will be experiencing population decline and ageing. In most cases, populations that are simultaneously ageing and declining will experience severe reductions in the ratio of persons of working age (15 to 64 years) to older persons (65 years or older).

These observations evoke an important set of issues and related questions. The first concerns the robustness of the projection figures. The second issue relates to the social and economic consequences of such unprecedented demographic trends and population changes. The third centres on the extent to which replacement migration is a solution to these expected trends and changes. Finally, the fourth issue relates to the policy and programmatic implications of the results from this study.

With regard to the figures themselves, it should be noted that most of the countries where population is projected to decline have well-developed statistical systems and considerable amounts of data and analytical insight on their demographic situation and trends. Having such a sound basis is of great help in suggesting what the most likely course of events in the future would be and how various alternative scenarios would diverge from or fall in line with present population trends.

From the demographic point of view, there is little doubt that the most likely course of events for those countries will result in smaller and older populations. To the extent that persons of working age (15 to 64 years) can be seen as supporting the older population (65 years or older), the ratio between the two (i.e., the "potential support ratio" or PSR) will decline dramatically. However, it is useful to ask a number

of "what if" questions. What would happen, for example, if fertility, mortality and migration changed course? More specifically, how much would they have to change course in order to reverse the most likely demographic outcomes?

Fertility is presently at record low levels in many countries where total fertility rates (TFR) as low as 1.2 children per woman have been recorded in recent years—well below the level of 2.1 children per woman that would ensure the replacement of the parents' generation. Although fertility may rebound in the coming decades, few believe that fertility in most countries will recover sufficiently to reach replacement level in the foreseeable future.

TABLE 2. COUNTRIES WHOSE POPULATION IS EXPECTED TO DECLINE BETWEEN 2000 AND 2050: CHANGES IN THE TOTAL POPULATION AND IN THE PROPORTION AGED 65 YEARS OR OLDER

Country or area [a]	*Population (thousands)*		*Population Change*		*Per cent 65 years or older*		*Change in proportion 65 years or older*
	2000	*2050*	*(thousands)*	*(per cent)*	*2000*	*2050*	*(per cent)*
Austria	8 211	7 094	-1 117	-14	15	30	106
Belarus	10 236	8 330	-1 907	-19	14	25	86
Belgium	10 161	8 918	-1 243	-12	17	28	65
Bosnia and Herzegovina	3 972	3 767	-205	-5	10	27	171
Bulgaria	8 225	5 673	-2 552	-31	16	30	88
China, Hong Kong SAR [b]	6 927	6 664	-263	-4	11	33	217
Croatia	4 473	3 673	-800	-18	15	26	77
Cuba	11 201	11 095	-105	-1	10	27	176
Czech Republic	10 244	7 829	-2 415	-24	14	33	144
Denmark	5 293	4 793	-500	-9	15	24	59
Estonia	1 396	927	-469	-34	14	29	107
Finland	5 176	4 898	-278	-5	15	26	72
Germany	82 220	73 303	-8 917	-11	16	28	73
Greece	10 645	8 233	-2 412	-23	18	34	92
Hungary	10 036	7 488	-2 548	-25	15	28	92
Italy	57 298	41 197	-16 101	-28	18	35	92
Japan	126 714	104 921	-21 793	-17	17	32	86
Latvia	2 357	1 628	-728	-31	14	27	86
Lithuania	3 670	2 967	-704	-19	13	27	102
Luxembourg	431	430	-1	0	14	27	84
Netherlands	15 786	14 156	-1 629	-10	14	28	104
Poland	38 765	36 256	-2 509	-6	12	26	118
Portugal	9 875	8 137	-1 738	-18	16	31	99
Romania	22 327	16 419	-5 908	-26	13	31	131
Russian Federation	146 934	121 256	-25 678	-17	13	25	100
Slovakia	5 387	4 836	-551	-10	11	27	139
Slovenia	1 986	1 487	-499	-25	14	32	131
Spain	39 630	30 226	-9 404	-24	17	37	117
Sweden	8 910	8 661	-249	-3	17	27	53
Switzerland	7 386	6 745	-641	-9	15	30	104
Ukraine	50 456	39 302	-11 154	-22	14	27	91
United Kingdom	58 830	56 667	-2 163	-4	16	25	56
Yugoslavia	10 640	10 548	-92	-1	13	23	73

Source: United Nations Population Division, *World Population Prospects: The 1998 Revision*.

NOTES:

[a] Countries or areas with 150,000 persons or more in 1995.

[b] As of 1 July 1997, Hong Kong became a Special Administrative Region (SAR) of China.

Table 3 below shows the range of values that the potential support ratio might reach in 2050 for the eight selected countries and two selected regions, according to the three variants (low, medium and high) of the standard population projections prepared by the United Nations Population Division. These variants correspond essentially to alternative assumptions about the course of fertility. For ease of comparison, the values of the PSR in 1995 are also shown. In France, for instance, the most likely course of events (medium variant) leads to a decline of the PSR from 4.36 to 2.26: in other words, a halving of the number of working-age persons per older person. In case fertility rises to what appears at this point to be the highest plausible level in the context of France (a TFR of 2.36 children per woman in 2040-2050), the PSR would somewhat improve in relation to the medium variant, but it would still be nearly halved. If, on the other hand, fertility stabilizes at a TFR of 1.58 after 2005—which at this point appears to be the lowest plausible level—the PSR would decline even more drastically, to less than two persons in the working-age group per older person.

Thus, while the range of outcomes of alternative fertility levels in terms of the PSR by 2050 would be significant (1.95 against 2.52) the difference is relatively small in relation to the level from which the PSR will be dropping (4.36). Moreover, the impact of alternative fertility levels would not be felt until the later part of the period. While in the long run fertility levels will be the determinant factor in shaping the age structure of the population, plausible ranges of increases in fertility rates in the next decades would contribute at best marginally to slowing the process of population aging by 2050. In the short to medium term—say over the next 20 years or so—measures to shore up fertility levels would not have any impact on the PSR.

With regard to mortality, its reduction will continue to be an overriding policy goal, so action in this area would by design further the population ageing process. Longevity is in any case projected to increase, even in the absence of possible new medical breakthroughs.

Therefore, among the demographic variables, only international migration could be instrumental in addressing population decline and population ageing in the short to medium term. As noted above, the most likely changes in fertility and mortality rates for Europe and Japan are unlikely to counter population decline and population ageing over the next half century.

TABLE 3. VALUES OF THE POTENTIAL SUPPORT RATIO (PSR) BY PROJECTION VARIANT

Country or region	*PSR in 1995*	*PSR in 2050 by projection variant*		
		Low	*Medium*	*High*
France	4.36	1.95	2.26	2.52
Germany	4.41	1.81	2.05	2.35
Italy	4.08	1.35	1.52	1.75
Japan	4.77	1.47	1.71	1.91
Republic of Korea	12.62	2.04	2.40	2.70
Russian Federation	5.62	2.05	2.43	3.04
United Kingdom	4.09	2.02	2.37	2.75
United States	5.21	2.43	2.82	3.26
Europe	4.81	1.84	2.10	2.51
European Union	4.31	1.72	1.96	2.26

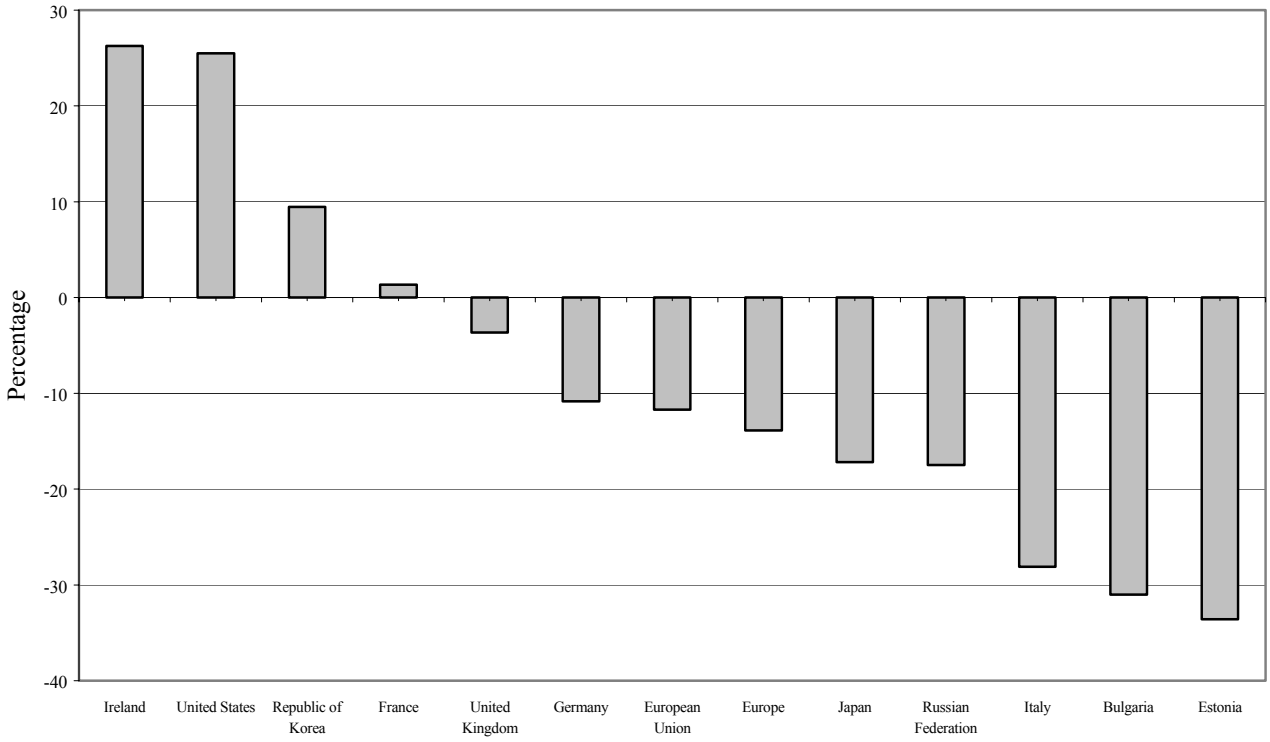
Source: United Nations Population Division, *World Population Prospects: The 1998 Revision*.

The prospects of population decline and population ageing during the coming decades, and particularly the rapid and extensive reduction of the potential support ratio in many countries, raise a number of crucial issues in the areas of employment, economic growth, health care services, pensions and social support services.

Moreover, while most developed countries will experience population decline, a few will not. Differentials in population growth, as illustrated in figure 2, will in some cases result in dramatic repositioning of countries and regions according to their relative population size. While these issues fall outside the scope of the present study, it is clear, however, that current demographic realities and expected future population changes, and their likely far-reaching consequences will force reassessments of many established economic, social and political policies and programmes, including those relating to international migration.

Following the publication of the draft of this study, the Population Division of the United Nations organized an Expert Group Meeting on "Policy Responses to Population Ageing and Population Decline" from 16 to18 October 2000, at United Nations Headquarters in New York. The Meeting focused on the eight countries considered in this report and brought together national experts from these countries and regions, as well as representatives from selected regional and international organisations. Replacement migration was one among a number of possible policy responses that were considered.

Figure 2. Per cent change in total population for selected countries and regions, 2000-2050



Source: United Nations Population Division, *World Population Prospects: The 1998 Revision*.

II. LITERATURE REVIEW

Population ageing is an inevitable outcome of the demographic transition. Primarily, as a result of declines in fertility and, secondarily, mortality declines, the age structure of a population becomes older, with a growing number and proportion of elderly persons. In recent years, the issue of population ageing has received renewed attention in many countries, especially those in the more developed regions, owing to the continuance of fertility below the replacement level and on-going trends towards lower mortality. While there is great variation among them in terms of the level and pace of population ageing, this demographic process is expected to increase further in these countries, and eventually their populations are projected to level off and decline in the foreseeable future. These changes have profound consequences and far-reaching implications, especially for pension schemes, heath-care systems, education programmes and housing plans, as well as for the economic vitality and growth of a country. This chapter reviews selected literature that concerns the impacts of migration on the size and age structure of population. Whereas existing studies have paid a great deal of attention to population ageing and its social and economic implications (see, for instance, United Nations, 2000b; Korea Institute for Health and Social Affairs, 2000; Organisation for Economic Cooperation and Development, 1997), the review that follows primarily gathers the literature that investigates the impact of international migration on population dynamics in a low-fertility setting.

The future population size and age-sex structure of any country depend basically on three demographic components: fertility, mortality and net international migration. As no policies to increase the mortality of a population are socially desirable, there are, in theory, two possible ways of retarding or reversing demographic ageing. First, a reversal of declines of fertility would lead the age structure of the population back towards a younger one, thus slowing down the ageing process. However, the recent experience of low-fertility countries suggests that there is no reason to assume that their fertility will return anytime soon to the above-replacement level (United Nations, 2000c; Lutz, 2000). Although Governments in those countries have introduced, instead of explicit pronatalist policies, a variety of social welfare measures favourable for higher fertility (Demeny, 2000), the long-term effectiveness of such measures is often called into question.

Hence, as a second option, the potential role that international migration could play in offsetting population decline and population ageing has been considered. International migration has become a salient global phenomena in recent years, with a growing number of countries being involved as sending or receiving countries, or both. Given the possibility of attracting larger numbers of immigrants into affluent developed economies, virtually all of which are experiencing low fertility, it appears appropriate to consider the impact that international migration may have on the demographic challenges of ageing. In formulating migration policy, it is also likely that the demand for demographic considerations will increase, as the rapid ageing process in those countries can give rise to rigidities in the labour market and social security (Organisation for Economic Cooperation and Development, 1991).

A number of previous studies have examined the demographic impact of a constant influx of migrants on the growth of a population with below-replacement fertility. For example, taking the twelve countries in Europe or members of the then European Community (EC) together, Lesthaeghe and others (1988) carried out population projections. With the present below-replacement fertility and with no further immigration, the total population of these European countries would be reduced by approximately 20 to 25 per cent by the year 2050. The calculations showed that an overall population decline during the first half of the twenty-first century can be avoided if about one million immigrants move into the area every year. Assuming the same annual migration gain of one million, Lutz (2000) recently showed that the total population of Western Europe would grow by 13 per cent (to 505 million in 2050), as opposed to declining by three percent (to 422 million) in the case of no migration.

Similar studies have been carried out more frequently at a national level. Ulrich (1998), however, argued that immigration can only slow an inevitable decline of the population of Germany. He applied different fertility assumptions for natives and foreigners and different immigration levels by group of immigrants, and estimated the population size of Germany and its structure in 2030. His projections showed that, even with a relatively high level of immigration, the population of the country would start falling in the near future. Wanner (2000), in his study of Switzerland, also showed that in the absence of future migration the total population of the country would start declining much earlier and would be 5.6 million in 2050, about 1.5 million less than what is currently projected.

The importance of immigration for the growth of population in traditional countries of immigration is relatively well recognized (Appleyard, 1991; Foot, 1991; United Nations, 1998). Nevertheless, even in these countries where relatively large numbers of migrants are systematically admitted, the current level of immigration may not be sufficient to prevent their population size from declining in the future. Espenshade (1986) projected the changes in the population of the United States, assuming that both the fertility and mortality rates remained constant at their 1980 level and that the number of immigrants remained at the level in 1983, with the same age and sex structure. According to these assumptions, the population in the United States would grow until 2025, but decline thereafter. In a similar exercise for Canada it was found that in order to avoid population decline, a volume of immigration exceeding the current annual quota would be necessary after 2050, under the assumption that the current fertility level would be maintained (Wattelar and Roumans, 1991).

Some of these studies demonstrate that long-lasting below-replacement fertility and immigration streams offsetting the negative natural growth of the national population would eventually lead to a significant increase in the foreign population and therefore a marked change in the composition of a host country (Espenshade 1986; Feichtinger and Steinman, 1992; Gesano, 1994; Ulrich, 1998). For example, in Germany, should the high rate of immigration continue at the levels of the 1990s, the foreign population in the country is projected to reach 17 million by 2030, comprising 21 per cent of the total population (Ulrich, 1998). This can be compared with the low variant figure of 8.7 million foreigners, or 12.5 per cent of the total population, assuming a moderate assumption of net annual immigration of 80,000 persons. The demographic consequences of constant immigration flows were also examined using the case of Italy (Gesano, 1994). Accordingly, if the country desires to achieve a stationary population of the same size as the population of 57.7 million in 1991, a constant annual inflow of about 389,000 immigrants would be needed. The population would increase to a maximum of 69.2 million in 2036, when the foreign-born population would increase to 22 per cent. The eventual stationary population would include 31 per cent of foreign population.

From the viewpoint of the economic sustainability of a country, what is probably more crucial is the future changes in the size of working-age population, rather than the total population size. In Western Europe, for example, with the baby-boom cohorts now fully absorbed in the labour force, and the smaller cohorts that follow, the declines in the working-age population can be foreseen. However, some researchers (Coleman, 1992; Feld, 2000) caution against the casual resumption of mass immigration to meet the volatile demands of labour market. In fact, the results obtained in the empirical research demonstrated that the working-age population in Western Europe would continue to increase in the medium term, under the current combined effect of natural increase and international migration (Feld, 2000). Furthermore, recognizing the limited power of international migration to influence the growth and age structure of population under imaginable circumstances, Coleman (1992) asserted that priority should be given to seeking reserves of domestic manpower that have not yet been mobilized, rather than resorting to immigration.

As the age structure of immigrants is often younger than that of the host population, there is a popular belief that a large influx of immigrants makes the population of the host country significantly

younger. Accordingly, it is commonly believed that a more generous immigration policy can immediately increase the size of the working-age population and help reduce markedly the dependency costs of the elderly. However, analyses of the migration flows of recent decades in the developed countries have provided scant evidence to support these conclusions. In the United Kingdom after the Second World War, immigration neutralized the previously dominant pattern of emigration. Thus, without new Commonwealth immigration and the contribution of births from immigrants, the population of the country would have been smaller by 3 million than it was in the early 1990s (Coleman, 1995). Coleman (1995) asserts, however, that the cumulative effects of migration alone on the age structure of the country have been limited, because the age structures of immigrant and emigrant flows are similar and the level of migration is relatively small in relation to natural change. Similarly, Le Bras (1991) explored the demographic consequences of the migration flows since the end of the Second World War in seven developed countries: Australia, Belgium, Canada, France, Germany, Italy and Sweden. He also concluded that the "rejuvenating" effect of migration on the host populations in the recent past had been fairly modest. Immigration had lowered the average age of the population in these seven countries by merely 0.4 to 1.4 years.

A number of other studies have analysed the effects of the steady influx of migration on the future age structure of a host population. They equally point out that the overall ageing trend can be attenuated through immigration, but it cannot be prevented. For instance, Lesthaeghe and others (1988) projected the age structure of the total population of the twelve European countries with and without migration up to the year 2060. Assuming that the total fertility of nationals remained constant at 1.6 and that of non-nationals fell to the replacement level by 2010, the proportion aged 65 years or older among females would rise from 16.3 per cent in 1985 to 25.8 per cent in 2060 in the absence of migration. The proportion was projected to be 21.3 per cent in 2060 if an additional 400,000 female immigrants arrived every year, other things being equal. In Western Europe, almost independent of future fertility and mortality, significant population ageing is virtually certain, as much of the future change is already pre-programmed in the current age structure of the population (Lutz, 2000). Even massive immigration cannot be a remedy for population ageing, unless migrants leave the receiving countries before they reach retirement age, because they also get older and eventually comprise part of the aged population.

Research for the United States also indicates that immigration has relatively little effect on overall age composition of the population and therefore will not be a realistic solution to demographic ageing (Coale, 1986; Espenshade, 1994; Day, 1996). Assuming that immigrants adopt the low fertility of a host population, Coale (1986) compared the age structure of the United States population in 2100 with and without a net immigration of 700,000 per year. He showed that the difference in the projected age distributions of the two populations is fairly modest, regardless of the four different below-replacement fertility scenarios. Similar results were presented a decade later by Day (1996). According to her projections, should fertility and mortality follow the middle-series assumption and net migration be held at 820,000 per year or near the current level, the proportion aged 65 years or older in the United States would increase from 12.8 per cent in 1990 to 20.0 per cent in 2050. Even if a fairly larger level of immigration (1.4 million per year) occurred, it would reduce the future percentage of elderly in the population only slightly (to 19.4 per cent).

Concerns about an ageing society often arise not only from the growing number and proportion of elderly, but also from the rapidly changing ratio of the working-age population to the retired population. In particular, the sharp drop of the ratio may directly affect the viability of social security systems. In the study cited earlier, Lesthaeghe and others (1988) computed the ratio of adult women (20-59 years) to elderly women (60 years or older) for the total population of the twelve European countries under five different scenarios. If the countries kept their current below-replacement fertility, the ratio would decline from 2.4 in 1985 to 1.5 in 2060. Immigration of 400,000 women per year from 1985 onwards would be of some help to alleviate the decline, but would still yield a ratio of 1.8 in 2060. In his study cited earlier, Wanner (2000) showed that in Switzerland, the ratio of the population aged 20 to 64 years to the

population aged 65 years or older would be 1.5 in 2050 in the absence of migration, as compared to 2.1, which is currently projected.

While the foregoing studies unanimously point out the limited effects of international migration on population ageing, Ryder (1997) noted that the outcomes of these population projections could be sensitive to the assumed age distribution of net international migrants. As the age at entry of migrants increases, the expectation of life after migration declines, and so does the reproductive value of a migrant. Using the data for Canada, Ryder demonstrated that the increase in mean age of migrants at entry resulted in an increase in the dependency ratio by about 0.6 per cent per year of age, given a projection period of a century.

Instead of assuming migration to occur with a fixed number or at a constant rate and examining the consequences of this immigration on the age structure of a population, some researchers estimated the level of migration necessary to maintain the age structure of population. A study by Blanchet (1988) on France as well as one by Wattelar and Roumans (1991) on Austria, Belgium, Canada and Spain questioned whether immigration can be an instrument to maintain the equilibrium between the working and the dependent populations under the regime of low fertility. Eventually, these studies demonstrated the inadequacy of regulating age structure through migration in the long run. Migration can help to maintain the equilibrium of age structure in the short run, but migration cycles of a large amplitude may be inevitable in the long run (Blanchet, 1988). These authors' simulations illustrated clearly that initial structural irregularities in the population would cause sudden changes in future age pyramids. For this reason, the scenario that aims to keep constant the ratio of adults to elderly may lead to enormous immigration peaks to make up for the shortfalls of population. Furthermore, such massive inflows of migrants would be likely to bring about a phenomenal increase in the population of a country, as the immigrants themselves would become older and call for further immigration of younger population. Wattelar and Roumans (1991) argued that the desired dependency ratio could be better maintained by delaying retirement rather than resorting to migration from abroad.

In sum, although considerable variation exists in terms of the choice of the base year, the period of projection, the migration assumptions and the fertility scenarios adopted for nationals and non-nationals, the available research studies reach several conclusions. First, inflows of migrants will not be able to prevent population declines in the future, unless the migration streams reach comparatively high levels. Second, international migration can act as only a partial means to offset the effects of population ageing arising from below-replacement fertility. This recognition of the inadequacy of migration to counter population ageing, and in most cases population decline, has been further consolidated by questions regarding the feasibility of formulating and adopting suitable migration policies (Watteler and Roumans, 1991; Espenshade, 1994; McDonald and Kippen, 1999). The flows to meet such demographic objectives are often unrealistically large and would require strict control of both inflows and outflows of migrants. Furthermore, in many countries, additional large volumes of immigrants are likely to be socially and politically unjustifiable, even as a means of ensuring population stabilization. Therefore, for Governments that may wish to do so, regulation of the level and composition of replacement migration streams to reach a desired population size or population age structure poses enormous challenges.

III. THE APPROACH: METHODOLOGY AND ASSUMPTIONS

A. THE SIX SCENARIOS

As part of its regular work programme, the Population Division prepares population estimates and projections biennially for all countries of the world, with estimates for the period from 1950 to 1995, and with four projection variants for the period 1995 to 2050. The last such revision can be found in *World Population Prospects: The 1998 Revision* (United Nations, 1999a, 1999b and 1999c).

The four projection variants in the *1998 Revision* (high, medium, low and constant) are prepared for countries and areas using the cohort-component method. The different variants are based on different assumptions about the future course of fertility. All variants incorporate the same assumptions about the future course of mortality, and for most countries the assumptions about future international migration trends are also the same for all four variants.

The high, medium and low variants constitute the core of the official estimates and projections of the United Nations. They are meant to create a range that encompasses the likely future path of population growth for each country and area of the world. The high and low variants provide upper and lower bounds for that growth. The medium variant is a useful central reference for trends over the longer-term future. The constant variant projects the population of each country by maintaining fertility constant at the level estimated for 1990-1995. The results of this variant are meant to be used for illustrative purposes and are not considered to represent a likely future path for any country or area.

Building upon the medium variant of the *1998 Revision*, the present replacement migration study considers six different scenarios with regard to the migration streams needed to achieve particular population objectives or outcomes. The six scenarios are described below:

Scenario I. This scenario is based on the medium variant of the *1998 Revision*.

Scenario II. This scenario is based on the medium variant of the *1998 Revision*, amended by assuming zero migration after 1995.

Scenario III. This scenario computes and assumes the migration required to maintain the size of the total population at the highest level it would reach in the absence of migration after 1995.

Scenario IV. This scenario computes and assumes the migration required to maintain the size of the working-age population (15 to 64 years) at the highest level it would reach in the absence of migration after 1995.

Scenario V. This scenario computes and assumes the migration required to prevent the ratio of the size of the population aged 15-64 to the size of the population aged 65 or over, called the potential support ratio (PSR), from declining below the value of 3.0.

Scenario VI. This scenario computes and assumes the migration required to maintain the potential support ratio (PSR) at the highest level it would reach in the absence of migration after 1995.

The study examines the situation for eight countries: France, Germany, Italy, Japan, Republic of Korea, the Russian Federation, the United Kingdom and the United States. In addition, from 1995 on computations are also made for Europe and for the European Union, treating each as if it was a single country. The time period covered is roughly a half a century, from 1995 to 2050.

All the data pertaining to the eight countries and two regions mentioned above for the period 1950 to 1995 come from the estimates in the *1998 Revision*. For the period 1995 to 2050, projections are carried out using the cohort-component method, taking as a base the 1995 population by sex and five-year age groups and applying the age-specific fertility and mortality rates assumed in the medium variant of the *1998 Revision*.

More specifically, the number of survivors in each age and sex category at the end of each five-year period is calculated by applying to the base-year population age- and sex-specific survival rates that are derived from an observed or estimated national life-table, using the United Nations model for future mortality improvement. The number of births expected to take place during each five-year period is derived by applying the estimated age-specific fertility rate, which is obtained from the national fertility pattern and assumed future fertility trend, to the average number of women in the age group. The births are distributed by sex on the basis of the estimated sex ratio at birth. The assumed net number of international migrants, classified by age and sex, is incorporated into the calculations.

The detailed past results and future assumptions of the *1998 Revision* for each of the countries and regions examined in this study are presented in the annex tables. A detailed description of the methodology used for the estimates and projections may be found in *World Population Prospects: The 1998 Revision, volume III* (United Nations, 1999c).

The future population trends according to the medium variant are mainly determined by the assumed future course of fertility. For each of the countries and regions considered in this study, the total fertility rate is below the replacement level of 2.1 children per woman. For those countries whose latest estimated total fertility rate was between 1.5 and 2.1 children per woman (France, Republic of Korea, the United Kingdom and the United States), it is assumed that the fertility rate will move towards a target level of 1.9 children per woman and will remain constant to the end of the projection period, 2050. For those countries and regions whose latest estimated total fertility rate was less than 1.5 children per woman (Germany, Italy, Japan, the Russian Federation, Europe and the European Union), the fertility rate is expected to rise to a target level of 1.7 children per woman and remain constant thereafter. It should also be noted that the target total fertility rate was modified when information was available on the completed fertility of the cohort of women born in 1962. In those cases (France, Germany, Italy, Japan, Europe and the European Union), the target level was set as the average of either 1.9 or 1.7 and the estimated completed fertility of the 1962 cohort. In general, recorded post-1995 trends in fertility were assumed to continue until the year 2000, and then stabilize at the 2000 level until 2005. After 2005, fertility was assumed to move towards the target level at a pace of 0.07 children per woman per quinquennium.

Scenario I, which is the medium variant of the *1998 Revision*, already has migration assumptions for the period 1995-2050. In each of the other five scenarios the net total number of migrants during each five-year period is computed so that the projected results meet the particular requirements of the scenario.

Scenario II assumes that the total net number of migrants is zero for each five-year period. Scenario III involves computing the total net number of migrants for each five-year period needed to maintain the size of the total at the highest level it would reach in the absence of migration after 1995. Scenario IV determines the total net number of migrants for each five-year period required to maintain the size of the working age population (15-64 years) at the highest level it would reach in the absence of migration after 1995. Scenario V computes the total net number of migrants required to prevent the ratio of the population aged 15-64 to the population aged 65 or over from declining below 3.0. Finally, scenario VI

computes the total net number of migrants required to maintain the potential support ratio at the highest level it would reach in the absence of migration after 1995.

Another critical assumption concerns the age and sex distribution of the total net number of migrants. The age and sex structure of the migrants is assumed to be the same for all countries. This assumption, while unlikely, permits comparisons among the countries and regions. It is assumed that the structure of the migration streams is the average age and sex structure of migrants into Australia, Canada and the United States. These three countries were selected because they are the three major traditional countries of immigration.

The age structures of the three countries and their average, or model pattern for this study, are shown for males and females in figures 3 and 4 respectively. The per cent distribution by age and sex of the immigrants in the model pattern, which is used in the scenarios, is shown in table 4 and illustrated as an age-sex pyramid in figure 5.

The projection methodology also assumes that, after the immigrants arrive in a country, they experience the average fertility and mortality conditions of that country. While this is typically not the case, especially when immigrants come from a country that differs greatly demographically from the receiving country, this assumption permits computations to be more straightforward and also facilitates comparisons between countries and regions.

Figure 3. Per cent distribution of male immigrants by age in Australia, Canada, United States of America and model pattern

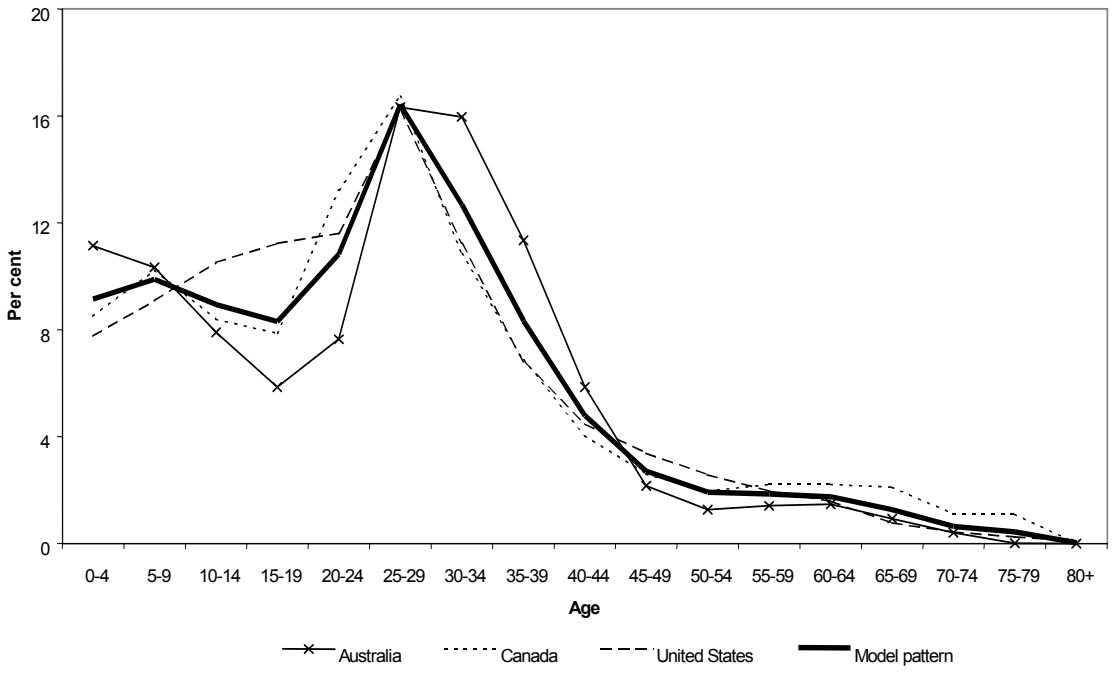
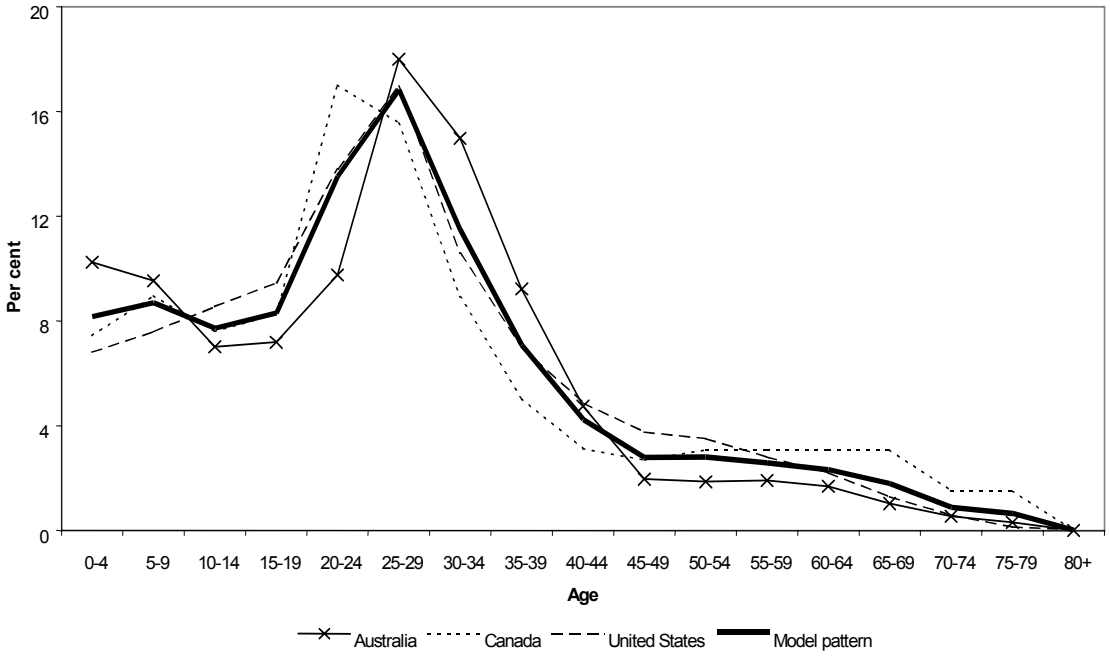


Figure 4. Per cent distribution of female immigrants by age in Australia, Canada, United States of America and model pattern

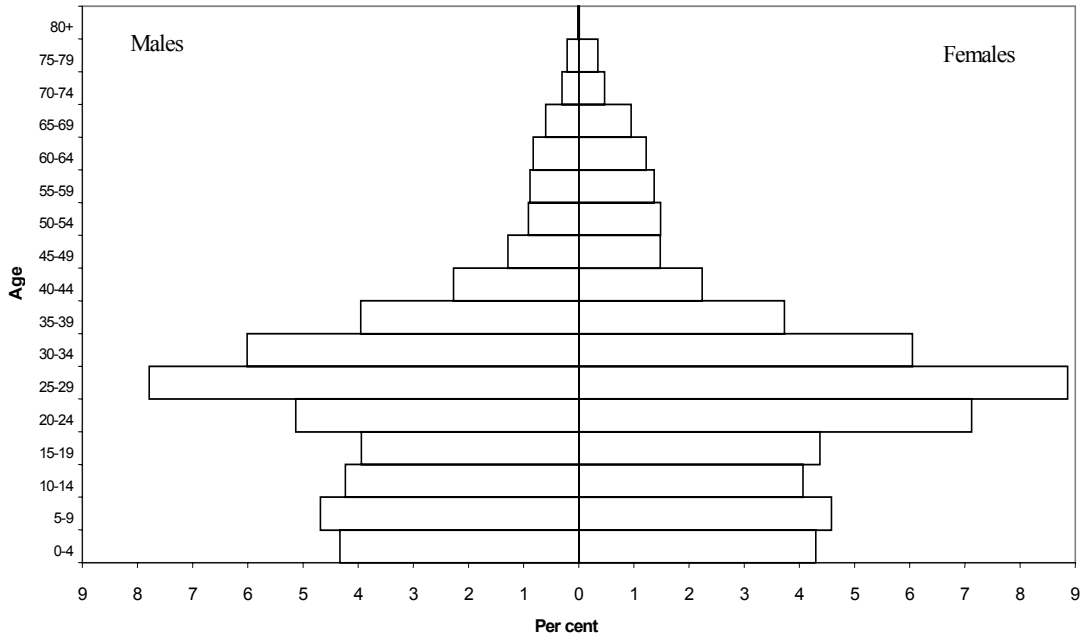


NOTE: The model pattern is the average of the three countries.

TABLE 4. PER CENT DISTRIBUTION OF NET NUMBER OF MIGRANTS BY AGE AND SEX, MODEL PATTERN

Age groups	*Males*	*Females*	*Both sexes*
0-4	4.33	4.29	8.63
5-9	4.69	4.58	9.26
10-14	4.24	4.06	8.30
15-19	3.94	4.37	8.31
20-24	5.13	7.12	12.25
25-29	7.79	8.86	16.65
30-34	6.01	6.05	12.06
35-39	3.95	3.73	7.68
40-44	2.27	2.24	4.51
45-49	1.28	1.47	2.76
50-54	0.91	1.48	2.40
55-59	0.88	1.37	2.25
60-64	0.83	1.22	2.05
65-69	0.60	0.95	1.55
70-74	0.30	0.47	0.77
75-79	0.21	0.34	0.56
80+	0.01	0.01	0.02
Total	47.40	52.60	100.00

Figure 5. Age-sex pyramid of immigrants, model pattern



B. THE IMPACT OF ECONOMIC ACTIVITY RATES ON SUPPORT RATIOS

In recent discussions about the impact of population ageing on the economically active, it has been mentioned that increasing economic activity rates could to a large extent counterbalance the effects of the transformation of the age structure. A special simulation was carried out to analyse the possible impact of changing economic activity rates on support ratios.

The potential support ratio (PSR) measures the potential numbers of active persons per each retired person, assuming that everybody aged 15-64 is economically active and that everybody aged 65 or over is no longer active. The ratio provides an indication, across country and time, everything else being assumed equal, of the impact of an age structure on old-age dependency.

Economic activity rates, however, are not uniform and vary by age and across countries. The active support ratio (ASR) measures the number of active persons aged 15 or over for each non-active person aged 65 or over, taking into account observed age-specific activity rates. In contrast to the PSR, the ASR more closely reflects in relative terms the number of active persons per each inactive elderly person.

In order to measure the maximum theoretical gain that could be obtained by increasing activity rates between age 25 and 64, the ASR resulting from the assumption that the entire population aged 25 to 64 is active economically has been computed and is named ASR1. ASR1 therefore represents 100 per cent economic activity rates for men and women in the age groups 25 to 64. The starting points were the age-specific activity rates reported for the year 1998 in the eight countries of this study.

IV. RESULTS

A. OVERVIEW

Past trends

At the middle of the twentieth century, the average fertility level stood at 2.6 children per woman in Europe and 2.4 children for the countries of the European Union (see table 5). For the countries in this study the range was from 2.2 children per woman in Germany and the United Kingdom to 2.7 children in France and in Japan. Fertility was markedly higher in the United States of America, 3.4 children, and even higher in the Republic of Korea, 5.4 children per woman. By 1965-1970, fertility had increased a little on average for the countries of the European Union, to 2.5 children per woman, but had fallen below replacement level in Japan and the Russian Federation at 2.0 children. Fertility had also decreased to 2.5 children in the United States and more slowly in the Republic of Korea, to 4.7 children. By 1995-2000, fertility was below replacement level in all countries and regions of the present study, with a relatively wide range of levels, from a high of 2.0 children in the United States to 1.2 children in Italy. The average for Europe and for the European Union was 1.4 children per woman.

As a consequence of this low, and decreasing, fertility history, coupled with a continuous decline in mortality, all populations aged rapidly. In 1950, the potential support ratio, which is defined as the ratio of the population aged 15-64 years to the population aged 65 years or older, ranged between 6 and 8 for the United States, the European Union countries, and Europe, and was 10 in the Russian Federation, 12 in Japan and 18 in the Republic of Korea. By 2000, the PSR had decreased by about 40 per cent, to 4 in the countries of the European Union and in Japan, 5 in the United States, the Russian Federation and Europe, and 11 in the Republic of Korea.

Scenario I

According to scenario I, the medium variant of the *1998 Revision,* the eight countries and two regions considered in this study would have below-replacement fertility levels until 2050 (see table 5). As a result, in all of these countries, with the exception of the United States, the total population would start declining before 2050. The population of Europe, for example, would be 101 million less (14 per cent) in 2050 than in 2000. The population of the European Union would be 44 million less in 2050 than in 2000, a 12 per cent reduction. Italy would see the largest relative loss, 28 per cent, followed by Japan at 17 per cent. The population of the United States would keep increasing significantly because its fertility does not fall far below replacement and substantial immigration is assumed to continue into the future. (The results of the *1998 Revision* are shown in the annex tables.)

All populations would continue to age rapidly. The PSR of the European Union and that of Europe would decrease by more than half between 2000 and 2050, from 4.1 to 2.0 and from 4.6 to 2.1, respectively. The largest decline, however, would be in the Republic of Korea, where the PSR would fall from 10.7 persons in the age group 15-64 years per one person aged 65 or older, to 2.4.

Scenario II

Scenario II is the medium variant of the *1998 Revision* with no migration assumed after 1995. It serves mostly as a backdrop, in order to measure by comparison the effects of the migrations assumed in the other scenarios. The European Union would lose 62 million people (17 per cent) between 2000 and 2050, and Europe would lose 123 million people (17 per cent) (see table 6). Since the migration streams assumed in scenario I are not very large, the results of scenario II are not substantially different from those of scenario I. The exception is the United States, where large flows of migration were assumed in scenario I. In scenario II the population of the United States would also start decreasing before 2050, and the increase between 2000 and 2050 would be 16 million (6 per cent), instead of 71 million as in scenario

I. In the group being studied, the only other countries where the population would be higher in 2050 than in 2000 are the Republic of Korea (10 per cent higher) and France (1 per cent higher).

In all countries and regions, the population aged 15-64 years would decline earlier and faster than the total population. For example, while the European Union would see its total population decline by 17 per cent between 2000 and 2050, the population aged 15-64 would decline by 30 per cent.

The proportion of the population aged 65 years or older would continue to increase rapidly, and in 2050 would reach 30 per cent for the European Union and 28 per cent for Europe. The highest proportion aged 65 years or older in 2050 would be in Italy (35 per cent) and in Germany and Japan (32 per cent). The lowest would be in the United States (23 per cent), with the Republic of Korea, the Russian Federation and the United Kingdom at 25 per cent, and France at 26 per cent. The potential support ratio would decrease rapidly for all countries and regions, reaching 1.9 for the European Union and 2.0 for Europe in 2050 (see table 7). The lowest level for the PSR in 2050, 1.5, would be in Italy, and the highest, 2.6, would be in the United States.

Scenario III

In the absence of migration after 1995, populations in all countries in the study and in the two regions would start declining before 2050. Scenario III keeps the size of the total population at the maximum level it would reach in the absence of migration. The dates at which this maximum would be reached differ by country. The earliest is 1995 for Germany, Italy, the Russian Federation and Europe, followed by 2000 for the European Union. The latest are 2035 for the Republic of Korea and 2030 for the United States. The total number of migrants needed to keep the total population constant at its maximum size until 2050 would be 47 million for the European Union and 100 million for Europe (see table 8). It would be 28 million in the Russian Federation, 18 million in Germany and 17 million in Japan, but only 1.5 million in France and in the Republic of Korea. In 2050 the proportion of the total population which would be made up of post-1995 immigrants and their descendants would range from 2 per cent in the United States and 3 per cent in France and the Republic of Korea, to 28 per cent in Germany and 29 per cent in Italy. The potential support ratios in 2050 would be a little higher than in scenario II, and range from 2.0 in Italy to 2.1 in Japan, 2.6 in the United States and 2.9 in the Russian Federation (see table 9).

Scenario IV

Scenario IV keeps the size of the population aged 15-64 years at the maximum level it would reach in the absence of migration. The dates at which this maximum would be reached differ by country. They range from 1995 for the European Union, Germany, Italy and Japan to 2000 for the Russian Federation and 2005 for Europe; 2010 for France and the United Kingdom; 2015 for the United States; and 2020 for the Republic of Korea. The total number of migrants needed to keep the population aged 15-64 constant until 2050 would be larger than in scenario III. The number that would be needed under scenario IV is 80 million for the European Union and 161 million for Europe (see table 8). The numbers range from 5 million in France and 6 million in the Republic of Korea and the United Kingdom to 25 million in Germany and 33 million in Japan. However, when the number of migrants is related to population size in the year 2000, it is Italy and Germany that would need the largest number of migrants over the period to 2050, respectively 6,500 and 6,000 annually per million inhabitants (see table 10 and figure 6). Among the countries studied, the United States would need the smallest number, approximately 1,300 per million inhabitants. In 2050 the proportion of the total population that would be made up of post-1995 immigrants and their descendants would range from 8 per cent in the United States to 12 per cent in France, 36 per cent in Germany and 39 per cent in Italy (see table 11). The potential support ratios would range from 2.2 in Italy and in Japan, to 2.8 in the Republic of Korea and 3.1 in the Russian Federation.

Scenario V

Scenario V prevents the potential support ratio from declining below the value of 3.0 by assuming net immigration once the PSR reaches the value of 3.0. The dates at which this occurs differ by country. The PSR reaches 3.0 in 2005 for Japan; in 2010 for Italy; in 2015 for Germany and the European Union; in 2020 for France and the United Kingdom; in 2025 for the United States and Europe; and in 2035 for the Russian Federation and the Republic of Korea. The total number of migrants that would be needed under scenario V is 154 million for the European Union and 235 million for Europe (see table 8). The numbers range from 12 million for the Republic of Korea, 14 million for the United Kingdom and 16 million for France, to 40 million for Germany, 45 million for the United States and 95 million for Japan. In 2050, the proportion of the population that would be post-1995 immigrants or their descendants would range from 17 per cent in the United States to 20 per cent in the Russian Federation, 53 per cent in Italy and 54 per cent in Japan (see table 11).

Scenario VI

Scenario VI keeps the potential support ratio at its 1995 level, which was 4.3 for the European Union, 4.8 for Europe, 4.1 in Italy and the United Kingdom, 5.6 in the Russian Federation and 12.6 in the Republic of Korea. The total number of migrants needed to keep the potential support ratio constant until 2050 is extremely large in all countries (see table 8). It is 700 million for the European Union and nearly 1.4 billion for Europe. It ranges from 60 million in the United Kingdom to 94 million in France, more than half a billion in Japan and the United States, and 5 billion in the Republic of Korea. In 2050, the proportion of the population that would be post-1995 migrants or their descendants would range from 59 per cent in the United Kingdom to 99 per cent in the Republic of Korea.

Discussion

In the absence of migration, all eight countries and the two regions with fertility below replacement will see their total population start declining before 2050, and their populations in the working-age group 15-64 years will decline even faster. Their populations will also age very rapidly. However many, if not most of them, have had immigrants in the recent past and can be expected to have immigrants in the future as well. Table 12 shows the annual net numbers of migrants for the period 1990 to 1998.

During the period 1990 to 1994, for example, the European Union received an average of a little over a million net immigrants per year and, during 1995 to 1998, a little over 600,000 per year. These numbers are quite close to the numbers of migrants that the European Union would need to receive to prevent its total population from declining: 612,000 per year between 2000 and 2025 and 1.3 million per year between 2025 and 2050. However, the annual numbers of immigrants who would be needed to prevent the population of working-age from declining are about double the numbers received in the last decade.

While the situation varies from country to country, it is somewhat similar in many of the countries with past experience with immigration. In France, Germany and the United Kingdom, the number of immigrants needed to keep constant either the total population or the working-age population varies irregularly through time because of specific age structures. These numbers are comparable to, or at most double, the number of immigrants received during the past decade. In the United States, the annual number of immigrants needed for both purposes is smaller than past immigration. In addition, the proportion in 2050 of the post-1995 migrants and their descendants in the total population (see table 11), in scenarios III and IV, is less than or equal to the proportion of migrants in the total population in 1990 in France (10.4 per cent) and in the United States (7.9 per cent). In Germany and in Italy, however, scenario III would result in about 30 per cent, and scenario IV about 40 per cent, of post-1995 migrants and their descendants in the 2050 population, which is much higher than at present (see table 13).

In scenarios III and IV, in all countries and regions, the potential support ratio would be much lower in 2050 than its 1995 level, and in some cases the decline in the PSR is substantial.

In scenario V all countries reach but do not go below the same level of PSR, 3.0 persons of active age for each older person. The number of migrants that would be needed is much larger than in the previous scenarios. These numbers are clearly politically unacceptable in all countries in the present study, except for the United States, where they correspond to the present and projected level of immigration.

The annual number of immigrants needed to keep the potential support ratios constant at their 1995 levels (scenario VI) is vastly larger, in every country, than any past experience (see figure 7). Scenario VI would furthermore result in having between 59 per cent and 99 per cent of the population of all countries in 2050 composed of post-1995 migrants and their descendants. This scenario is clearly not realistic; therefore, immigration cannot prevent ageing of the population.

In the absence of migration (scenario II), the figures show that in 2050 the ratios between the population in working-age and the population past working-age would remain at their 1995 levels if by that date, the upper limits of the working-age span should be increased from 65 years to about 72 years in the United Kingdom, 73 years in the Russian Federation, 74 years in France and the United States, 77 years in Germany, Italy and Japan, and 82 years in the Republic of Korea (see table 14).

Impact of Economic Activity Rates on Support Ratios

Except for Japan, the active support ratios for 1998 are lower than the PSRs in all countries (see table 16). For example, in France the PSR is 4.2 and the ASR is 2.9. This is the case because activity rates are lower than 100 per cent before age 65 and are very low after 65. The reductions from the PSR to the ASR range from 8 per cent in the Republic of Korea and 10 per cent in the United States, to 32 per cent in the Russian Federation and 39 per cent in Italy (see table 17). The resulting ASRs range from 2.7 in Italy, to 2.9 in France, 3.0 in Germany, 4.4 in Japan, 4.9 in the United States and 9.3 in the Republic of Korea (see table 16). In Japan, in contrast, economic activity rates are very high before age 65 and remain relatively high after 65: as a consequence, the ASR is 3 per cent higher than the PSR.

As noted, when economic activity rates between ages 25 and 64 are assumed to be 100 per cent, maximum possible gains in active support ratios are achieved. For 1998, ASR1 becomes higher than ASR by 22 per cent in Japan and by 50 per cent in Italy. The resulting ASR1s range from 3.7 in France, and 4.0 in Italy and the United Kingdom to 5.3 in Japan and 5.8 in the United States (and 12.2 in the Republic of Korea).

The support ratios (PSRs and ASRs) for the year 2050 are computed for scenario II, which assumes there is no migration after 1995, utilizing the 1998 age-specific economic activity rates. The ageing of the population between 1998 and 2050 will result in large declines of both the PSRs and ASRs, with the proportional declines in both indicators being very similar. The declines in ASRs will range from 44 per cent in the United Kingdom to 48 per cent in France, 59 per cent in the Russian Federation and Germany, 60 per cent in Japan and 81 per cent in the Republic of Korea. The ASRs in the year 2050 will range from 0.9 in Italy and 1.2 in Germany, to 1.8 in Japan and the United Kingdom, and 2.3 in the United States.

The computation of ASR1s for the year 2050 indicates that increasing activity rates to 100 per cent by 2050 for all men and women in the ages 25 to 64 would offset a relatively small part of the decline in the ASR, representing 8 per cent of the decline in the Republic of Korea, 15 per cent in Japan and 21 per cent in the United States, upto a maximum of 35 per cent in France and in the United Kingdom.

Thus, the conclusion from this brief analysis is relatively clear. Possible future increases in economic activity rates in the ages 25-64 cannot, on their own, be a solution to the decline in the active support ratios caused by ageing. If one wishes to keep active support ratios at levels closer to what they are currently, without large numbers of immigrants, serious consideration would have to be given to increasing active participation in the labour force beyond the age of 65 years.

The European Union and the United States—the world's two largest economic blocks, which are often in competition with each other—are projected to follow starkly contrasting demographic paths in the coming decades: while the population of the United States would increase by 82 million between 1995 and 2050, that of the European Union would decline by 41 million (see table 15). As a result, the population of the United States, which in 1995 was 105 million smaller than that of the European Union, would be larger by 18 million in 2050. The same trends would characterize their working-age populations: while the number of people aged 15-65 years would decline by 61 million in the European Union, in the United States this number would increase by 39 million. By 2050, the working-age population of the United States would outnumber that of the European Union by 26 million, while in 1995 the working-age population of the European Union outnumbered that of the United States by 75 million. Therefore, although the elderly population would increase more and at a faster rate in the United States than in the European Union, the potential support ratio would continue to be less favourable in the European Union compared to the United States. In 2050 the PSR would stand at 2.0 persons of working-age per elderly person in the European Union, in contrast with a PSR of 2.8 in the United States.

TABLE 5. TOTAL FERTILITY RATES, 1950 TO 2050, BY COUNTRY OR REGION
(*Number of children per woman*)

	Period				
Country or region	*1950-1955*	*1965-1970*	*1995-2000*	*2020-2025*	*2045-2050*
France	2.73	2.61	1.71	1.96	1.96
Germany	2.16	2.32	1.30	1.58	1.64
Italy	2.32	2.49	1.20	1.47	1.66
Japan	2.75	2.00	1.43	1.73	1.75
Republic of Korea	5.40	4.71	1.65	1.90	1.90
Russian Federation	2.51	2.02	1.35	1.70	1.70
United Kingdom	2.18	2.52	1.72	1.90	1.90
United States	3.45	2.55	1.99	1.90	1.90
Europe	2.56	2.35	1.42	1.67	1.78
European Union	2.39	2.52	1.44	1.45	1.80

Source: United Nations Population Division, *World Population Prospects: The 1998 Revision*.

TABLE 6. TOTAL POPULATION (ZERO MIGRATION AFTER 1995), 1950 TO 2050, BY COUNTRY OR REGION
(*Thousands*)

	Year				
Country or region	*1950*	*1975*	*2000*	*2025*	*2050*
France	41 289	52 699	58 879	61 121	59 357
Germany	68 376	78 679	80 985	72 643	58 812
Italy	47 104	55 441	56 950	50 679	40 722
Japan	83 625	111 524	126 714	121 150	104 921
Republic of Korea	20 357	35 281	46 946	53 020	51 751
Russian Federation	102 192	134 233	144 960	131 824	114 248
United Kingdom	50 616	56 226	58 600	58 768	55 594
United States	157 813	220 165	274 335	296 616	290 643
Europe	547 318	676 390	723 482	684 055	600 464
European Union	296 151	349 313	372 440	354 500	310 839

TABLE 7. POTENTIAL SUPPORT RATIO (ZERO MIGRATION AFTER 1995), 1950 TO 2050, BY COUNTRY OR REGION
(*Number of persons aged 15-64 per person aged 65 or older*)

	Year				
Country or region	*1950*	*1975*	*2000*	*2025*	*2050*
France	5.79	4.65	4.10	2.82	2.26
Germany	6.90	4.29	4.11	2.45	1.75
Italy	7.92	5.29	3.72	2.40	1.52
Japan	12.06	8.60	3.99	2.24	1.71
Republic of Korea	18.16	16.25	10.67	4.43	2.40
Russian Federation	10.49	7.66	5.51	3.63	2.41
United Kingdom	6.24	4.50	4.08	2.93	2.36
United States	7.83	6.15	5.21	3.09	2.57
Europe	7.99	5.67	4.65	3.03	2.04
European Union	6.97	4.84	4.06	2.66	1.89

TABLE 8. NET NUMBER OF MIGRANTS, 1995-2050, BY SCENARIO AND COUNTRY OR REGION
(*Thousands*)

Scenario	*I*	*II*	*III*	*IV*	*V*	*VI **
Country or region	*Medium Variant*	*Medium variant with zero migration*	*Constant total population*	*Constant age group 15-64*	*Ratio 15-64/65+ not less than 3.0*	*Constant ratio 15-64/65 years or older*
			A. Total number			
France	525	0	1 473	5 459	16 037	*93 794*
Germany	11 400	0	17 838	25 209	40 481	*188 497*
Italy	660	0	12 944	19 610	35 088	*119 684*
Japan	0	0	17 141	33 487	94 837	*553 495*
Republic of Korea	-450	0	1 509	6 426	11 595	*5 148 928*
Russian Federation	7 417	0	27 952	35 756	26 604	*257 110*
United Kingdom	1 200	0	2 634	6 247	13 674	*59 775*
United States	41 800	0	6 384	17 967	44 892	*592 757*
Europe	23 530	0	100 137	161 346	235 044	*1 386 151*
European Union	16 361	0	47 456	79 605	153 646	*700 506*
			B. Average annual number			
France	10	0	27	99	292	*1 705*
Germany	207	0	324	458	736	*3 427*
Italy	12	0	235	357	638	*2 176*
Japan	0	0	312	609	1 724	*10 064*
Republic of Korea	-8	0	27	117	211	*93 617*
Russian Federation	135	0	508	650	484	*4 675*
United Kingdom	22	0	48	114	249	*1 087*
United States	760	0	116	327	816	*10 777*
Europe	428	0	1 821	2 934	4 274	*25 203*
European Union	297	0	863	1 447	2 794	*12 736*

** Scenario VI is considered to be unrealistic.*

TABLE 9. POTENTIAL SUPPORT RATIO IN 1995, AND IN 2050 BY SCENARIO AND COUNTRY OR REGION
(*Number of persons aged 15-64 per person aged 65 or older*)

		2050					
		I	*II*	*III*	*IV*	*V*	*VI **
Country or region	*1995*	*Medium variant*	*Medium variant with zero migration*	*Constant total population*	*Constant age group 15-64*	*Ratio 15-64/65+ not less than 3.0*	*Constant ratio 15-64/65 years or older*
France	4.36	2.26	2.26	2.33	2.49	3.00	*4.36*
Germany	4.41	2.05	1.75	2.26	2.44	3.13	*4.41*
Italy	4.08	1.52	1.52	2.03	2.25	3.00	*4.08*
Japan	4.77	1.71	1.71	2.07	2.19	3.00	*4.77*
Republic of Korea	12.62	2.40	2.40	2.49	2.76	3.00	*12.62*
Russian Federation	5.62	2.43	2.44	2.86	3.12	3.00	*5.62*
United Kingdom	4.09	2.37	2.36	2.49	2.64	3.06	*4.09*
United States	5.21	2.82	2.57	2.63	2.74	3.04	*5.21*
Europe	4.81	2.11	2.04	2.38	2.62	3.00	*4.81*
European Union	4.31	1.97	1.89	2.21	2.42	3.03	*4.31*

** Scenario VI is considered to be unrealistic.*

TABLE 10. AVERAGE ANNUAL NET NUMBER OF MIGRANTS BETWEEN 2000 AND 2050, PER MILLION INHABITANTS IN 2000, BY SCENARIO AND COUNTRY OR REGION

Scenario	*I*	*II*	*III*	*IV*	*V*	*VI **
Country or region	*Medium Variant*	*Medium variant with zero migration*	*Constant total population*	*Constant age group 15-64*	*Ratio 15-64/65+ not less than 3.0*	*Constant ratio 15-64/65 years or older*
France	110	0	500	1 854	5 423	*30 430*
Germany	2 519	0	4 244	6 009	9 842	*44 825*
Italy	109	0	4 414	6 531	12 248	*39 818*
Japan	0	0	2 705	5 103	14 969	*82 634*
Republic of Korea	138	0	643	2 738	4 950	*2 184 700*
Russian Federation	752	0	3 435	4 933	3 621	*34 958*
United Kingdom	341	0	899	2 132	4 643	*20 383*
United States	2 770	0	465	1 310	3 226	*43 201*
Europe	519	0	2 650	4 460	6 450	*37 511*
European Union	724	0	2 548	4 262	8 188	*36 194*

** Scenario VI is considered to be unrealistic.*

TABLE 11. PER CENT OF POST-1995 MIGRANTS AND THEIR DESCENDANTS IN TOTAL POPULATION IN 2050, BY SCENARIO AND COUNTRY OR REGION

Scenario	*I*	*II*	*III*	*IV*	*V*	*VI **
Country or region	*Medium variant*	*Medium variant with zero migration*	*Constant total population*	*Constant age group 15-64*	*Ratio 15-64/65+ not less than 3.0*	*Constant ratio 15-64/65 years or older*
France	0.9	0.0	2.9	11.6	27.4	*68.3*
Germany	19.8	0.0	28.0	36.1	48.1	*80.3*
Italy	1.2	0.0	29.0	38.7	53.4	*79.0*
Japan	0.0	0.0	17.7	30.4	54.2	*87.2*
Republic of Korea	-0.9	0.0	3.2	13.9	21.3	*99.2*
Russian Federation	5.8	0.0	22.9	27.6	20.2	*71.9*
United Kingdom	1.9	0.0	5.5	13.6	25.3	*59.2*
United States	16.8	0.0	2.5	7.9	17.4	*72.7*
Europe	4.3	0.0	17.5	25.8	32.8	*74.4*
European Union	6.2	0.0	16.5	25.7	40.2	*74.7*

** Scenario VI is considered to be unrealistic.*

TABLE 12. NET ANNUAL MIGRATION FLOWS, 1990 TO 1998

Country or region/Year	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*	*1997*	*1998*
France	80 000	90 000	90 000	70 000	50 000	40 000	35 000	40 000	40 000
Germany	656 166	602 563	776 397	462 284	315 568	398 263	281 493	93 433	50 821
Italy	24 212	4 163	181 913	181 070	153 364	95 499	149 745	126 554	113 804
Japan	2 000	38 000	34 000	-10 000	-82 000	-50 000	-13 000	14 000	38 000
Republic of Korea[a]	-	-	-10 000	-	-	-	-	-20 000	-
Russian Federation	164 000	51 600	176 100	430 100	810 000	502 200	343 600	352 600	285 200
United Kingdom	68 384	76 416	44 887	90 141	84 242	116 869	104 075	88 476	178 000
United States	1 536 483	1 827 167	973 977	904 292	804 416	720 461	915 900	798 378	660 477
Europe[a]	-	-	1 047 000	-	-	-	-	950 000	-
European Union	1 008 251	1 078 441	1 350 132	1 062 116	782 855	805 363	734 596	512 208	569 000

Sources: European Union, France, Germany, Italy and the United Kingdom: European Commission, Eurostat, *Demographic Statistics: Data 1960-99* (Luxembourg, 1999); Japan: Management and Coordination Agency, Statistics Bureau, *Japan Statistical Yearbook 2000* (Tokyo, 1999); Russian Federation: State Committee of Russia for Statistics, *Russian Statistical Yearbook 1999* (Moscow, 1999); United States: Immigration and Naturalization Service, *1997 Statistical Yearbook of the Immigration and Naturalization Service* (Washington, D.C., Government Printing Office, 1999); *Legal Immigration, Fiscal Year 1998*, Annual report No.2 (Washington, D.C., Department of Justice, 1999).

[a] Europe and the Republic of Korea: Averages for 1990-1995 and 1995-2000 from *World Population Prospects: The 1998 Revision*, vol.1 (United Nations publication, Sales No. E.99.XIII.9).

NOTE: Data for the United States of America contains only immigration; data for all other countries is net migration

TABLE 13. MIGRANT STOCK (FOREIGN-BORN POPULATION), 1990

Country or region	*Number of migrants (thousands)*	*Per cent of total population*
France	5 897	10.4
Germany[a]	5 037	6.4
Italy	1 549	2.7
Japan[a]	868	0.7
Russian Federation[b]	..	..
Republic of South Korea	900	2.1
United Kingdom	3 718	6.5
United States	19 603	7.9
Europe[c]	24 703	5.2
European Union	21 378	5.8

Source: *Trends in total migration stock, Revision 4* (POP/IB/DB/96/1/Rev.4), database maintained by the Population Division, Department of Economic and Social Affairs of the United Nations Secretariat.

[a] Data refer to foreign citizens.

[b] Data are not readily available.

[c] Data includes all European countries except those of the former Union of Soviet Socialist Republics and the former Yugoslavia.

TABLE 14. UPPER LIMIT OF WORKING-AGE NEEDED TO OBTAIN IN 2050 THE POTENTIAL SUPPORT RATIO OBSERVED IN 1995, SCENARIOS II AND V, BY COUNTRY OR REGION

Country or region	*Age*	
	Scenario II	*Scenario V*
France	73.9	69.0
Germany	77.2	72.4
Italy	77.3	74.7
Japan	77.0	72.4
Republic of Korea	82.2	67.6
Russian Federation	72.7	66.8
United Kingdom	72.3	68.2
United States	74.3	66.9
Europe	75.1	69.8
European Union	75.7	71.3

TABLE 15. TOTAL POPULATION IN 1995 AND IN 2050, AND GROWTH RATES BY SCENARIO, BY COUNTRY OR REGION

		2050					
		I	*II*	*III*	*IV*	*V*	*VI **
Country or region	*1995*	*Medium variant*	*Medium variant with zero migration*	*Constant total population*	*Constant age group 15-64*	*Ratio 15-64/65+ not less than 3.0*	*Constant ratio 15-64/65 years or older*
				A. Total population (thousands)			
France	58 020	59 883	59 357	61 121	67 130	81 719	*187 193*
Germany	81 661	73 303	58 812	81 661	92 022	113 181	*299 272*
Italy	57 338	41 197	40 722	57 338	66 395	87 345	*193 518*
Japan	125 472	104 921	104 921	127 457	150 697	229 021	*817 965*
Republic of Korea	44 949	51 275	51 751	53 470	60 125	65 736	*6 233 275*
Russian Federation	148 097	121 256	114 178	148 097	157 658	143 093	*406 551*
United Kingdom	58 308	56 667	55 594	58 833	64 354	74 398	*136 138*
United States	267 020	349 318	290 643	297 970	315 644	351 788	*1 065 174*
Europe	727 912	627 691	600 464	727 912	809 399	894 776	*2 346 459*
European Union	371 937	331 307	310 839	372 440	418 509	519 965	*1 228 341*
				B. Average annual growth rate 1995-2050 (per cent)			
France		0.06	0.04	0.09	0.27	0.62	*2.13*
Germany		-0.20	-0.60	0.00	0.22	0.60	*2.36*
Italy		-0.60	-0.62	0.00	0.27	0.77	*2.21*
Japan		-0.33	-0.33	0.03	0.33	1.10	*3.41*
Republic of Korea		0.24	0.26	0.32	0.53	0.69	*8.97*
Russian Federation		-0.36	-0.47	0.00	0.11	-0.06	*1.84*
United Kingdom		-0.05	-0.09	0.02	0.18	0.44	*1.54*
United States		0.49	0.15	0.20	0.30	0.50	*2.52*
Europe		-0.27	-0.35	0.00	0.19	0.38	*2.13*
European Union		-0.21	-0.33	0.00	0.21	0.61	*2.17*

** Scenario VI is considered to be unrealistic.*

TABLE 16. POTENTIAL SUPPORT RATIOS AND ACTIVE SUPPORT RATIOS, 1998 AND 2050

Country	*Measure*	*1998*	*2050*
France	PSR	4.19	2.26
	ASR	2.88	1.50
	ASR1	3.65	1.99
Germany	PSR	4.08	1.75
	ASR	2.99	1.24
	ASR1	3.89	1.67
Italy	PSR	4.42	1.52
	ASR	2.68	0.90
	ASR1	4.02	1.43
Japan	PSR	4.26	1.71
	ASR	4.37	1.76
	ASR1	5.34	2.14
Republic of Korea	PSR	10.03	2.40
	ASR	9.25	1.74
	ASR1	12.21	2.33
Russian Federation	PSR	5.57	2.41
	ASR	3.79	1.56
	ASR1	4.98	2.23
United Kingdom	PSR	4.07	2.36
	ASR	3.24	1.82
	ASR1	4.00	2.32
United States	PSR	5.37	2.57
	ASR	4.85	2.27
	ASR1	5.83	2.80

NOTES:
PSR = population (aged 15-64)/population (aged 65 or older)
ASR = active population (aged 15 or older)/non-active population (aged 65 or older)
ASR1 = active population (aged 15 or older)/non-active population (aged 65 or older), assuming that everybody aged 25 to 64 is economically active.

TABLE 17. CHANGES IN SUPPORT RATIOS
(Percentage)

	France	*Germany*	*Italy*	*Japan*	*Republic of Korea*	*Russian Federation*	*United Kingdom*	*United States*
Changes from PSR to ASR, 1998	-31	-27	-39	3	-8	-32	-20	-10
Changes from ASR to ASR1, 1998	27	30	50	22	32	31	24	20
Changes in ASR, 1998 to 2050	-48	-59	-66	-60	-81	-59	-44	-53
Changes in 2050 from ASR to ASR1, as a percentage of the changes in ASR between 1998 and 2050	35	24	30	15	8	30	35	21

Figure 6. Average annual net number of migrants between 2000 and 2050 to maintain size of working-age population, per million inhabitants in 2000

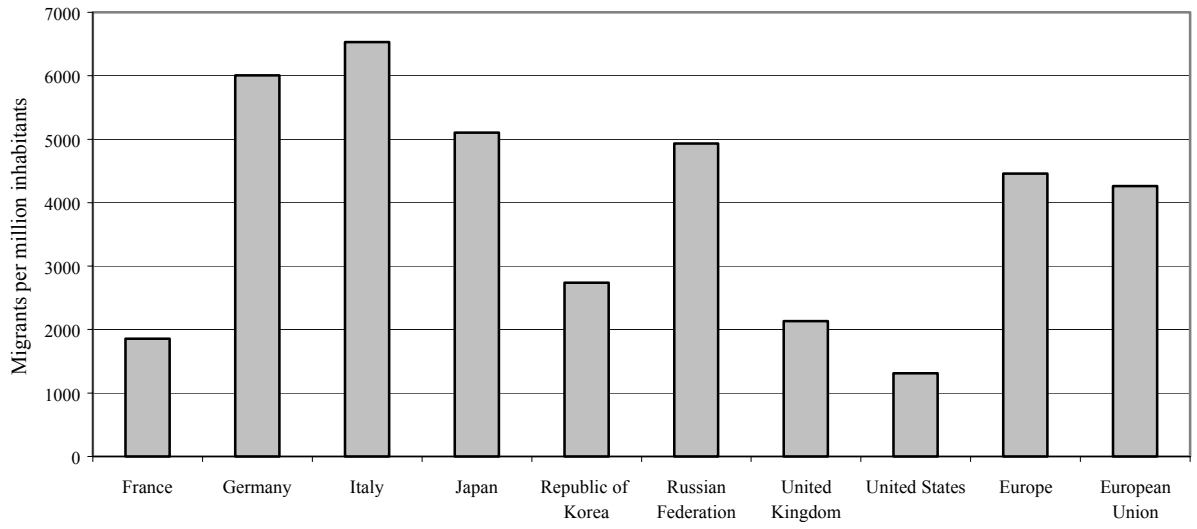
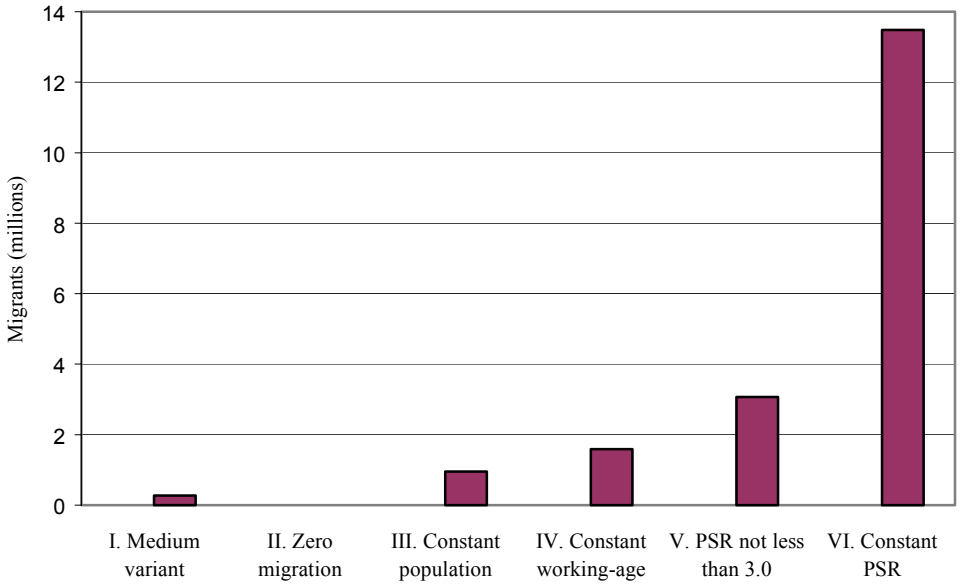


Figure 7. Average annual net number of migrants between 2000 and 2050 by scenario for the European Union



B. COUNTRY RESULTS

1. *France*

(a) *Past trends*

Between 1950 and 1965, the total fertility rate in France remained above 2.7 children per woman, but later dropped by 40 per cent, from 2.85 in 1960-1965 to 1.72 in 1990-1995. During that period the life expectancy at birth, for both sexes combined, increased from 66.5 years in 1950-1955 to 77.1 years in 1990-1995. One of the consequences of these changes was that the proportion of the population aged 65 or older increased from 11.4 per cent in 1950 to 15.0 per cent in 1995, while the proportion of the population aged 15-64 remained nearly constant at nearly 66 per cent. France was the country with the oldest population at the beginning of the twentieth century. In 1901 the potential support ratio was 7.8 persons aged 15-64 for each person aged 65 or older. It declined further to 5.8 in 1950 and to 4.4 in 1995.

(b) *Scenario I*

Scenario I, the medium variant of the 1998 United Nations projections, assumes a total of 525,000 net immigrants from 1995 to 2020 and none after 2020. It projects that the total population of France would increase from 58.0 million in 1995 to 61.7 million in 2025, and decline to 59.9 million in 2050 (the results of the 1998 United Nations projections are shown in the annex tables). At that date 525,000 persons (0.9 per cent of the total population) would be post-1995 migrants or their descendants. The population aged 15-64 would increase from 38.0 million in 1995 to 39.9 million in 2010 and then decrease to 34.6 million in 2050. The population aged 65 or older would keep increasing, from 8.7 million in 1995 to 15.4 million in 2040, before declining slightly to 15.3 million in 2050. As a result, the potential support ratio would decrease by nearly half, from 4.4 in 1995 to 2.3 in 2050.

(c) *Scenario II*

Scenario II, which is the medium variant with zero migration, uses the fertility and mortality assumptions of the medium variant of the 1998 United Nations projections, but without any migration to France after 1995. The results are very similar to those of scenario I. The total population of France would increase from 58.0 million in 1995 to 61.1 million in 2025 and then start decreasing, to 59.4 million in 2050. The population aged 15-64 would increase from 38.0 million in 1995 to 39.6 million in 2010, and then decrease to 34.3 million in 2050. The population aged 65 or older would keep increasing, from 8.7 million in 1995 to 15.3 million in 2040, before declining slightly to 15.2 million in 2050. As a result, the potential support ratio would decrease by nearly half, from 4.4 in 1995 to 2.3 in 2050.

(d) *Scenario III*

Scenario III keeps the size of the total population constant at its maximum of 61.1 million in 2025. In order to achieve this, it would be necessary to have 1.5 million immigrants between 2025 and 2050, an average of 60,000 per year. By 2050, out of a total population of 61.1 million, 1.8 million, or 2.9 per cent, would be post-1995 immigrants or their descendants.

(e) *Scenario IV*

Scenario IV keeps the size of the population aged 15-64 constant at its maximum of 39.6 million in 2010. For this to happen, 5.5 million immigrants would be needed between 2010 and 2050, an average of 136,000 per year. By 2050, out of a total population of 67.1 million, 7.8 million, or 11.6 per cent, would be post-1995 immigrants or their descendants.

(f) *Scenario V*

Scenario V does not allow the potential support ratio to decrease below the value of 3.0. In order to do this, no immigrants would be needed until 2020, and 16.0 million immigrants would be needed between 2020 and 2040, an average of 0.8 million per year during that period. By 2050, out of a total population of 81.7 million, 22.4 million, or 27 percent, would be post-1995 immigrants or their descendants.

(g) *Scenario VI*

Scenario VI keeps the potential support ratio at its 1995 value of 4.4. In order to achieve this, 32.1 million immigrants would be needed from 2000 to 2025, an average of 1.3 million per year, and 60.9 million immigrants from 2025 to 2050, an average of 2.4 million per year. By 2050, out of a total population of 187 million, 128 million, or 68.3 per cent, would be post-1995 immigrants or their descendants.

(h) *Additional considerations*

As a point of comparison, the official net immigration recorded in France was an average of 76,000 per year for 1990-1994 and an average of 39,000 per year for 1995-1998. Thus, the number of migrants needed to prevent a decline in the total size of the population (scenario III) would be comparable to the past experience of immigration to France. Furthermore, the number of migrants that would be needed to keep constant the size of the population of labour-force age (scenario IV) is about double the level experienced in the early 1990s. In addition, under scenario IV, in 2050 the proportion of post-1995 immigrants and their descendants within the total population (11.6 per cent) would be comparable to the proportion of foreign-born that exists currently (10.4 per cent in 1990). Figure 9 shows, for scenarios I, II, III and IV, the population of France in 2050, indicating the share that consists of post-1995 migrants and their descendants.

However, the number of immigrants needed to keep the potential support ratio at its 1995 level would be vastly larger than any previously experienced migration flow, 20 to 40 times the annual numbers of the last 10 years. Furthermore, more than two thirds of the resulting population in 2050 would be composed of post-1995 immigrants and their descendants.

In the absence of migration, the figures show that it would be necessary to raise the upper limit of the working-age to 69 years to obtain in 2050 a potential support ratio of 3.0 in 2050 and to about 74 years in order to obtain in 2050 the same potential support ratio observed in France in 1995, which was 4.4 persons of working-age per each older person past working-age. Increasing the activity rates of the population, if it were possible, would only be a partial palliative to the decline in support ratio due to ageing. If the activity rates of all men and women aged 25 to 64 should increase to 100 per cent by 2050, this would make up for only 35 per cent of the loss in the active support ratio resulting from the ageing of the population.

TABLE 18. POPULATION INDICATORS FOR FRANCE BY PERIOD FOR EACH SCENARIO

Scenario	*I*	*II*	*III*	*IV*	*V*	*VI **
Period	*Medium variant*	*Medium variant with zero migration*	*Constant total population*	*Constant age group 15-64*	*Ratio 15-64/65+ not less than 3.0*	*Constant ratio 15-64/65 years or older*
			A. Average annual number of migrants (thousands)			
1995-2000	40	0	0	0	0	*842*
2000-2025	13	0	0	114	157	*1 282*
2025-2050	0	0	59	105	485	*2 301*
2000-2050	7	0	29	109	321	*1 792*
1995-2050	10	0	27	99	292	*1 705*
			B. Total number of migrants (thousands)			
1995-2000	200	0	0	0	0	*4 210*
2000-2025	325	0	0	2 838	3 917	*32 054*
2025-2050	0	0	1 473	2 621	12 120	*57 530*
2000-2050	325	0	1 473	5 459	16 037	*89 584*
1995-2050	525	0	1 473	5 459	16 037	*93 794*
			C. Total population (thousands)			
1950	41 829	-	-	-	-	-
1975	52 699	-	-	-	-	-
1995	58 020	-	-	-	-	-
2000	59 080	58 879	58 879	58 879	58 879	*63 310*
2025	61 662	61 121	61 121	64 442	65 283	*105 188*
2050	59 883	59 357	61 121	67 130	81 719	*187 193*
			D. Age group 0-14 (thousands)			
1950	9 498	-	-	-	-	-
1975	12 594	-	-	-	-	-
1995	11 326	-	-	-	-	-
2000	11 047	11 009	11 009	11 009	11 009	*12 182*
2025	10 588	10 495	10 495	11 399	11620	*21 788*
2050	10 012	9 924	10 393	11 572	14 850	*38 396*
			E. Age group 15-64 (thousands)			
1950	27 569	-	-	-	-	-
1975	33 004	-	-	-	-	-
1995	37 986	-	-	-	-	-
2000	38 620	38 488	38 488	38 488	38 488	*41 593*
2025	37 686	37 355	37 355	39 625	40 247	*67 847*
2050	34 586	34 282	35 493	39 625	50 152	*121 047*
			F. Age group 65+ (thousands)			
1950	4 762	-	-	-	-	-
1975	7 101	-	-	-	-	-
1995	8 708	-	-	-	-	-
2000	9 413	9 381	9 381	9 381	9 381	*9 535*
2025	13 388	13 271	13 271	13 417	13 416	*15 554*
2050	15 285	15 151	15 234	15 932	16 717	*27 750*
			G. Potential support ratio 15-64/65+			
1950	5.79	-	-	-	-	-
1975	4.65	-	-	-	-	-
1995	4.36	-	-	-	-	-
2000	4.10	4.10	4.10	4.10	4.10	*4.36*
2025	2.81	2.81	2.81	2.95	3.00	*4.36*
2050	2.26	2.26	2.33	2.49	3.00	*4.36*

** Scenario VI is considered to be demographically unrealistic.*

FRANCE

Figure 8. Age-sex structures by scenario for 2000, 2025 and 2050
(*Population in millions*)

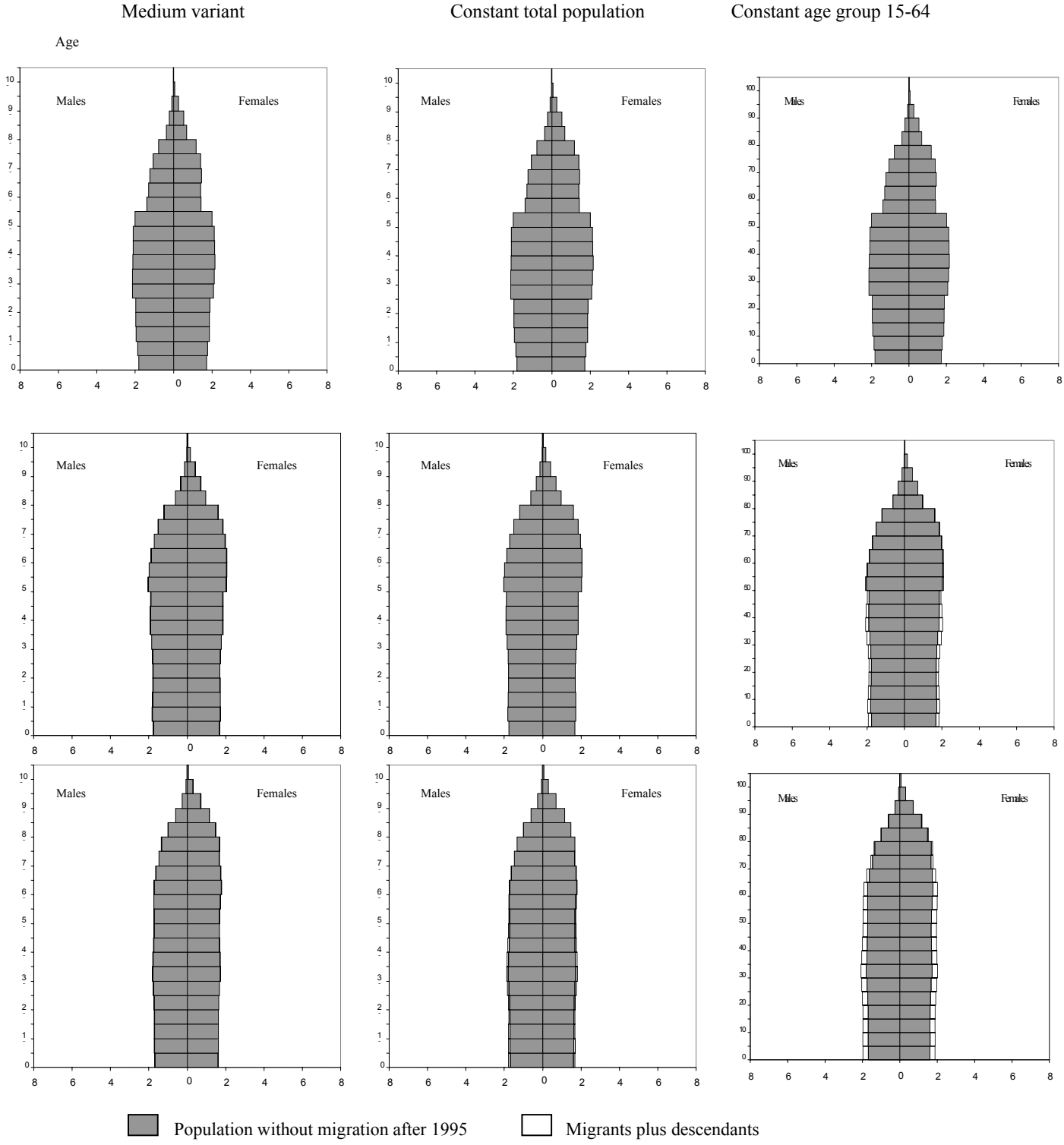
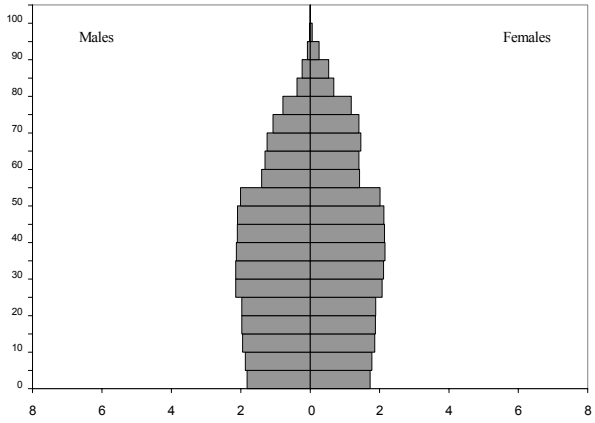
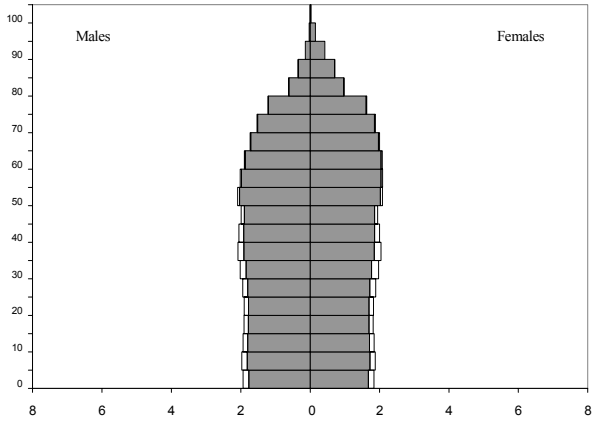
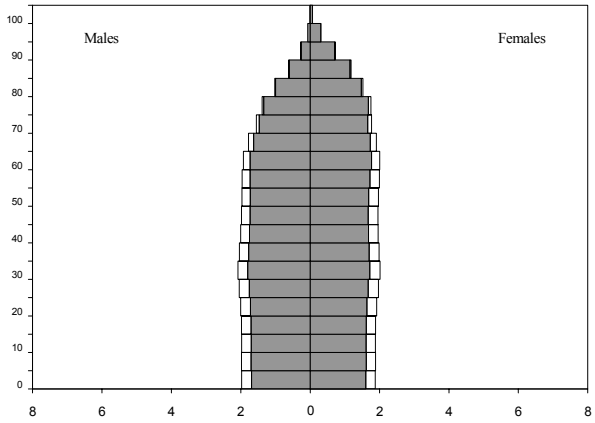


Figure 8 (continued)

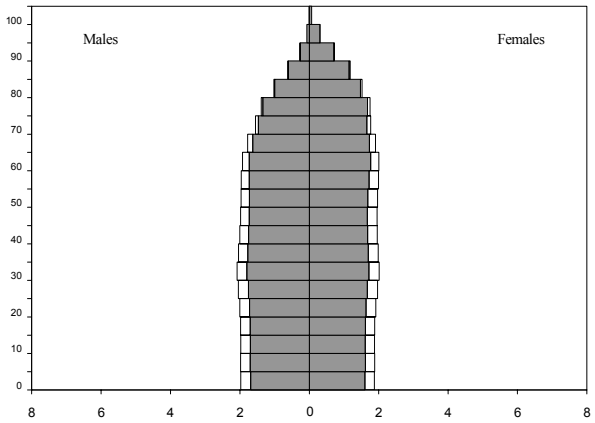
Ratio 15-64/65+
not less than 3.0

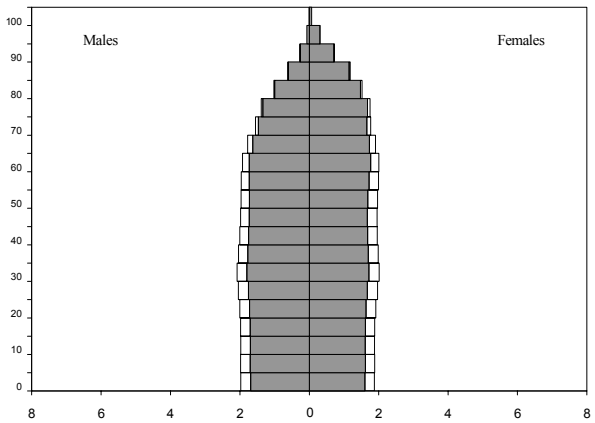






Constant ratio
15-64/65 years or older





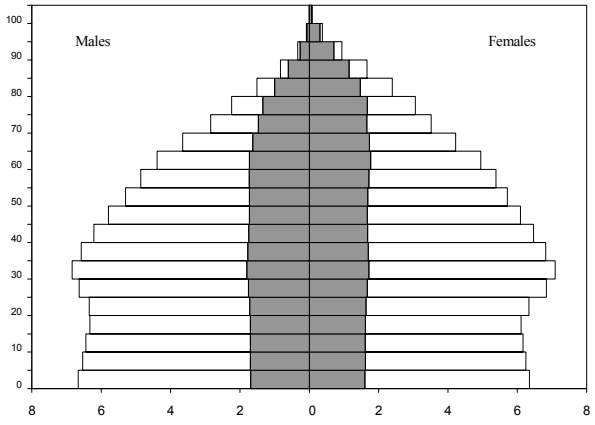
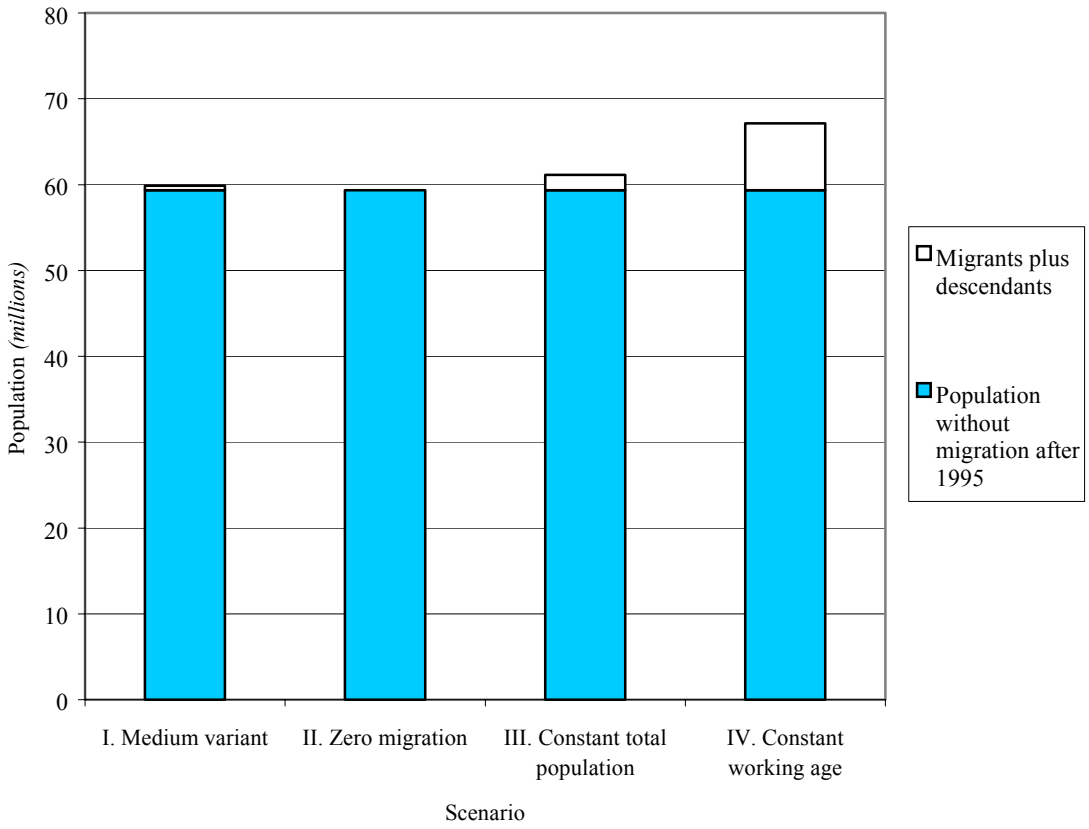


Figure 9. Population of France in 2050, indicating those who are post-1995 migrants and their descendants, by scenario



2. *Germany*

(a) *Past trends*

While the total fertility rate increased steadily from 2.16 to 2.49 children per woman between 1950-1955 and 1960-1965, Germany experienced a continuous decline afterwards, to 1.30 children per woman in 1990-1995. As in other countries in Western Europe, life expectancy increased during the entire period between 1950 and 1995. It reached 76 years for both sexes during the interval of 1990-1995, up from 67.5 years for 1950-1955. One of the results of increased life expectancy and low fertility rates is the process of population ageing. The proportion of the population aged 65 years or older increased from 9.7 per cent in 1950 to 15.5 per cent in 1995. The potential support ratio declined from 6.9 persons aged 15-64 years for one person aged 65 years or over in 1950 to 4.4 persons in 1995.

(b) *Scenario I*

Scenario I, the medium variant of the United Nations *1998 Revision*, assumes a net total of 11.4 million migrants between 1995 and 2050. For the years 1995-2005 it estimates 240,000 migrants per year and for the period between 2005 and 2050 a net migration of 200,000 persons per annum. For the overall population of Germany the medium variant projects an increase from 81.7 million in 1995 to 82.4 million in 2005. Thereafter, the population would continuously decline to 73.3 million in 2050 (the results of the 1998 United Nations projections are shown in the annex tables). The population aged 15-64 years would increase slightly from 55.8 million in 1995 to 56.0 million in 2000; between 2000 and 2050 it would decrease continuously to 42.7 million. The share of the elderly (65 years and above) would increase from 12.6 million in 1995 (15.5 per cent) to 20.8 million in 2050 (28.4 per cent). Consequently, the potential support ratio would be halved, decreasing from 4.4 in 1995 to 2.1 in 2050.

(c) *Scenario II*

Scenario II is based on the fertility and mortality assumptions of the medium variant of the *1998 Revision* of the United Nations, but without any migration to Germany after 1995. Compared to scenario I, the total population would decrease much faster, from 81.7 million in 1995 to 58.8 million in 2050, a 28 per cent decrease for the total population. The population aged 15-64 years would decrease even faster: from 55.8 million to 32.7 million, a 41 per cent loss. In the absence of any migration, the population aged 65 or older would increase to 18.7 million by the year 2050. As a result, the potential support ratio in scenario II would decrease from 4.4 in 1995 to 1.8 in 2050.

(d) *Scenario III*

Scenario III assumes a constant total population between 1995 and 2050 (81.7 million). Keeping the population at such a level would require substantially higher immigration to Germany than anticipated by the United Nations *1998 Revision*. Between 1995-2050, a total of 17.8 million net migrants would be needed, an average of 324,000 per year. Such a migration flow would result in a population 15-64 of 48.4 million, and the group of 65 years or older would increase to 21.4 million in 2050. The potential support ratio would decline from 4.4 to 2.3 in 2050. In 2050, out of a population of 82 million people, 23 million (28 per cent) would be post-1995 migrants or their descendants.

(e) *Scenario IV*

Scenario IV keeps the size of the population aged 15-64 years constant at the 1995 level of 55.8 million until the year 2050. This would require a total of 25.2 million migrants between 1995 and 2050, an average of 458,000 per year. The total population of Germany would increase to 92 million in 2050, of which 33 million (36 per cent) would be post-1995 migrants and their descendants. The potential support ratio would be 2.4 in 2050.

(f) *Scenario V*

Scenario V does not allow the potential support ratio to decrease below the value of 3.0. In order to achieve this, no immigrants would be needed until 2015, and 40.5 million immigrants would be needed between 2015 and 2035, an average of 2.0 million per year during that period. By 2050, out of a total population of 113.2 million, 54.4 million, or 48 percent, would be post-1995 immigrants or their descendants.

(g) *Scenario VI*

Scenario VI keeps the potential support ratio constant at its 1995 level of 4.4 until 2050. The total of immigrants needed between 1995 and 2050 to keep this ratio constant would be 188.5 million, which is an average of 3.4 million migrants per year. In 2050 the total population would be 299 million, of which 80 per cent would be post-1995 migrants and their descendants.

(h) *Additional considerations*

Net migration in the years 1990-1992 was close to 680,000 individuals per annum. That number decreased between 1993-1998 to about 270,000 persons per year. The net number of migrants needed to keep the total population constant (324,000 per year), or to keep the age group 15-64 year constant (458,000 per year), is within the range of the experience of the past decade. However, to maintain the current potential support ratio of 4.4 would require an influx of 3.4 million migrants per year. This number would be more than ten times the yearly amount of migrants entering Germany during 1993-1998.

Figure 11 shows, for scenarios I, II, III and IV, the population of Germany in 2050, indicating the share that is made up of post-1995 migrants and their descendants. By the end of 1997, foreigners accounted for almost 9 per cent of the total population in Germany. This should be compared to the proportion of post-1995 migrants and their descendants by the year 2050: 20 per cent in scenario I; 28 per cent in scenario III; 36 per cent in scenario IV; and 80 per cent in scenario VI.

In the absence of migration, the figures show that it would be necessary to raise the upper limit of the working-age to 72.4 years to obtain a potential support ratio of 3.0 in 2050, and to about 77 years in order to obtain in 2050 the same potential support ratio observed in Germany in 1995, which was 4.4 persons of working-age per each older person past working age. Increasing the activity rates of the population, if it were possible, would only be a partial palliative to the decline in support ratio due do ageing. If the activity rates of all men and women aged 25 to 64 were to increase to 100 per cent by 2050, this would make up for only 24 per cent of the loss in the active support ratio resulting from the ageing of the population.

TABLE 19. POPULATION INDICATORS FOR GERMANY BY PERIOD FOR EACH SCENARIO

Scenario	*I*	*II*	*III*	*IV*	*V*	*VI **
Period	*Medium variant*	*Medium variant with zero migration*	*Constant total population*	*Constant age group 15-64*	*Ratio 15-64/65 + not less than 3.0*	*Constant ratio 15-64/65 years or older*
			A. Average annual number of migrants (thousands)			
1995-2000	240	0	130	176	0	*1 398*
2000-2025	208	0	279	473	631	*2 273*
2025-2050	200	0	408	501	988	*4 988*
2000-2050	204	0	344	487	810	*3 630*
1995-2050	207	0	324	458	736	*3 427*
			B. Total number of migrants (thousands)			
1995-2000	1 200	0	650	880	0	*6 990*
2000-2025	5 200	0	6 978	11 816	15 781	*56 816*
2025-2050	5 000	0	10 209	12 514	24 701	*124 692*
2000-2050	10 200	0	17 187	24 330	40 481	*181 508*
1995-2050	11 400	0	17 838	25 209	40 481	*188 497*
			C. Total population (thousands)			
1950	68 376	-	-	-	-	-
1975	78 679	-	-	-	-	-
1995	81 661	-	-	-	-	-
2000	82 220	80 985	81 661	81 898	80 985	*88 241*
2025	80 238	72 643	81 661	87 451	89 661	*148 307*
2050	73 303	58 812	81 661	92 022	113 181	*299 272*
			D. Age group 0-14 (thousands)			
1950	15 854	-	-	-	-	-
1975	16 932	-	-	-	-	-
1995	13 264	-	-	-	-	-
2000	12 751	12 468	12 640	12 700	12 468	*14 315*
2025	10 704	9 248	11 219	12 543	13 623	*25 244*
2050	9 803	7 379	11 807	13 398	17 264	*54 694*
			E. Age group 15-64 (thousands)			
1950	45 877	-	-	-	-	-
1975	50 073	-	-	-	-	-
1995	55 763	-	-	-	-	-
2000	56 025	55 114	55 595	55 763	55 114	*60 271*
2025	50 773	45 042	51 588	55 763	57 029	*100 331*
2050	42 706	32 744	48 426	55 763	72 667	*199 400*
			F. Age group 65+ (thousands)			
1950	6 645	-	-	-	-	-
1975	11 674	-	-	-	-	-
1995	12 634	-	-	-	-	-
2000	13 444	13 403	13 427	13 435	13 403	*13 656*
2025	18 762	18 354	18 854	19 144	19 010	*22 732*
2050	20 794	18 689	21 428	22 861	23 250	*45 178*
			G. Potential support ratio l5-64/65+			
1950	6.90	-	-	-	-	-
1975	4.29	-	-	-	-	-
1995	4.41	-	-	-	-	-
2000	4.17	4.11	4.14	4.15	4.11	*4.41*
2025	2.71	2.45	2.74	2.91	3.00	*4.41*
2050	2.05	1.75	2.26	2.44	3.13	*4.41*

** Scenario VI is considered to be demographically unrealistic.*

GERMANY

Figure 10. Age-sex structures by scenario for 2000, 2025 and 2050
(*Population in millions*)

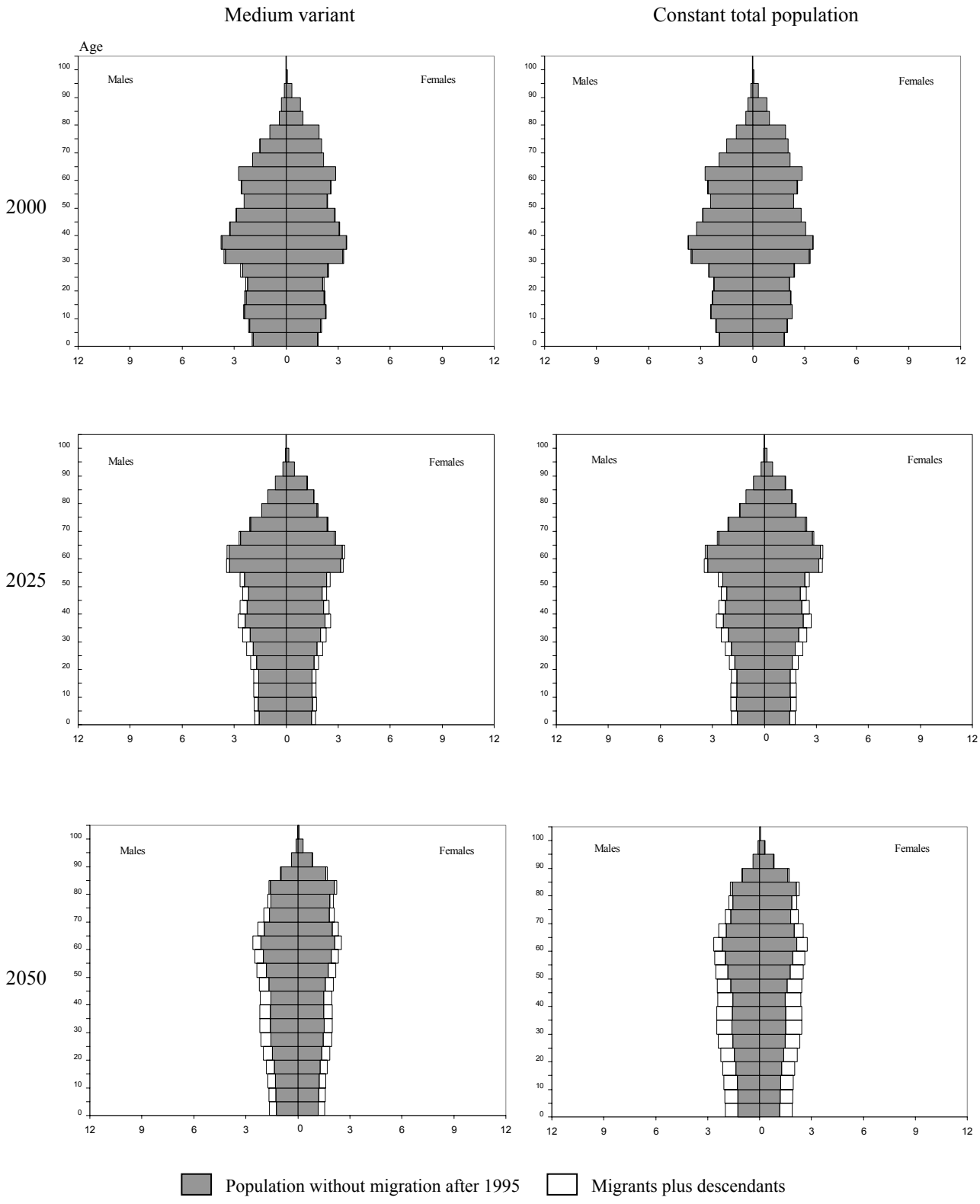


Figure 10 (continued)

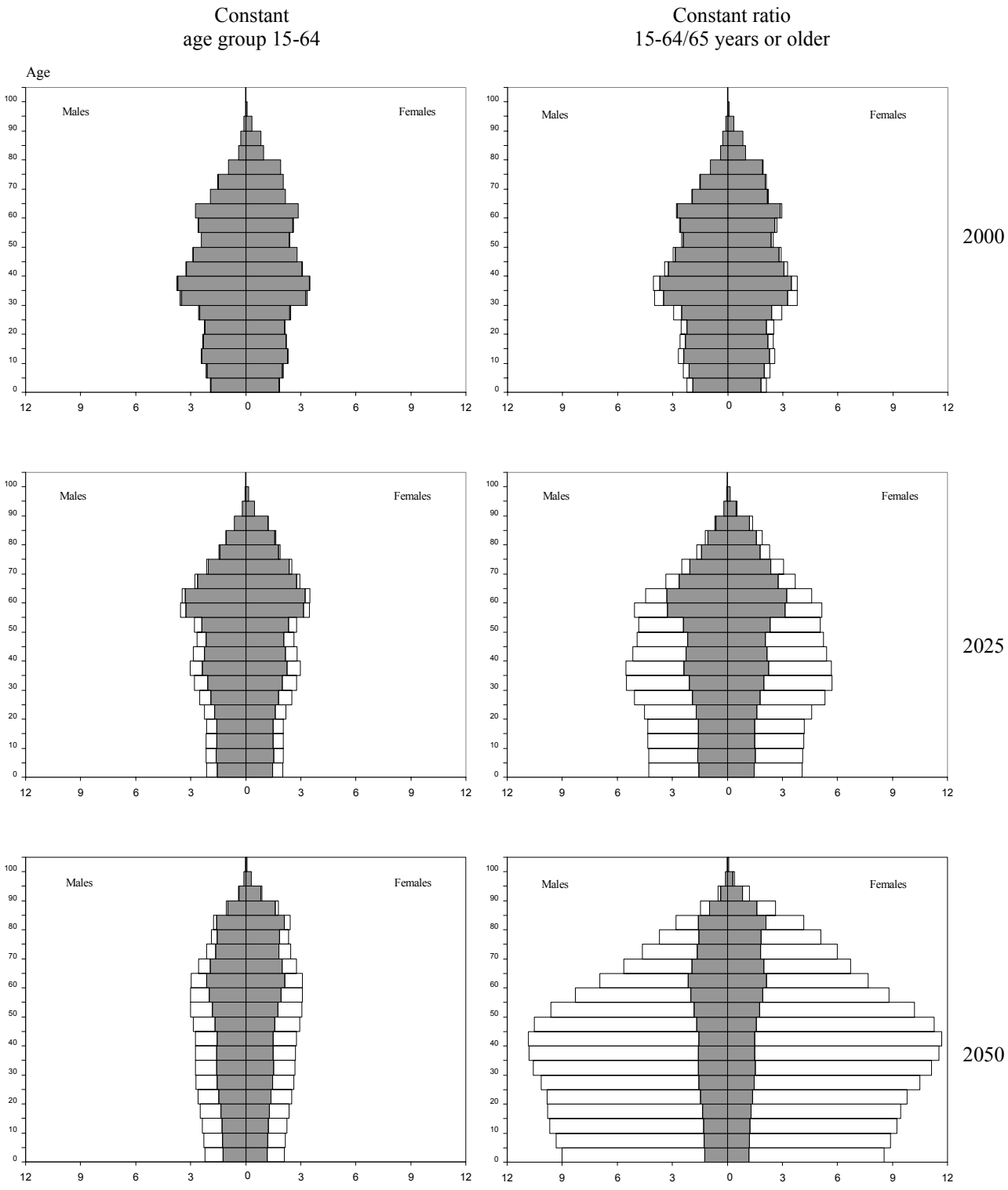
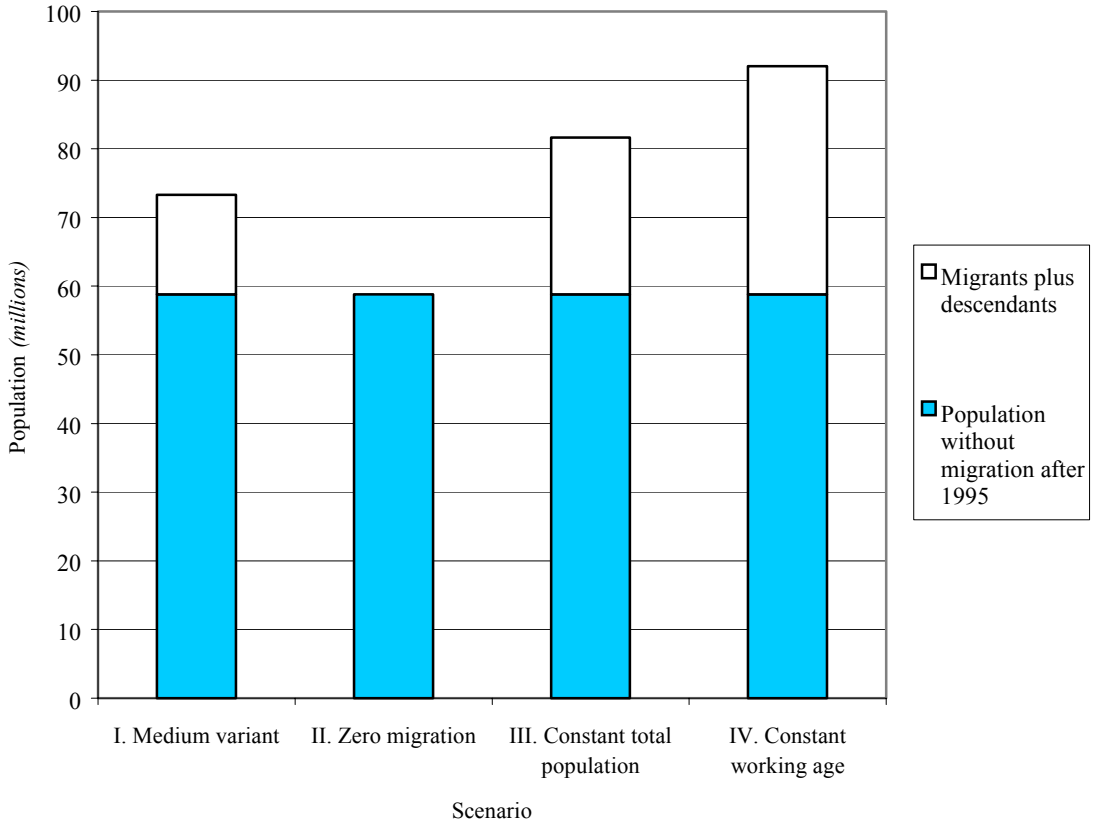


Figure 11. Population of Germany in 2050, indicating those who are post-1995 migrants and their descendants, by scenario



3. *Italy*

(a) *Past trends*

The total fertility rate in Italy increased from 2.3 in 1950-1960 to 2.5 in 1960-1970 and has been declining ever since. It has been below replacement level since 1975, and in 1995-2000 it was estimated at 1.20 children per woman, one of the lowest in the world. Since 1950, mortality has declined consistently, resulting in an increase in life expectancy for both sexes from 66.0 years in 1950-1955 to 77.2 years in 1990-1995. Despite an estimated net annual immigration of 70,000 in 1995-2000, the population of Italy declined during 1995-2000. Among the consequences of these demographic changes was the more than doubling of the proportion of the population aged 65 or older, from 8.3 per cent of the population in 1950 to 16.8 per cent in 1995.

As a result of these changes, the potential support ratio for Italy declined from 7.9 persons aged 15-64 for each person aged 65 or older in 1950 to 4.1 in 1995.

(b) *Scenario I*

This scenario, which is the medium variant of the United Nations *1998 Revision*, assumes that there will be 660,000 net immigrants between 1995 and 2020, after which there will be no more migration to Italy. Under this scenario, the population of Italy would decline by 28 per cent, from 57.3 million in 1995 to 41.2 million in 2050 (The results of the 1998 United Nations projections are shown in the annex tables). The population aged 15-64 would decline by 44 per cent over the same period, while the population over 65 years old would increase by 49 per cent, from 9.6 million to 14.4 million. Persons aged 65 or older would constitute more than one third of the population of Italy by 2050. As a result, the potential support ratio would decrease by 63 per cent, from 4.1 in 1995 to 1.5 in 2050.

(c) *Scenario II*

Scenario II, which is the medium variant with zero migration, assumes that fertility and mortality will change according to the medium variant projections of the United Nations *1998 Revision*, but that there will be no migration into Italy will occur after 1995. The results are very similar to those in Scenario I. Italy's population in 2050 would be 40.7 million, only 475,000 persons less than under Scenario I. There would be 21.6 million and 14.2 million persons aged 15-64 and 65 or older, respectively, in 2050. As in Scenario I, the potential support ratio would decrease by 63 per cent from 4.1 in 1995 to 1.5 in 2050.

(d) *Scenario III*

It is assumed, for Scenario III, that between 1995 and 2050 the total population of Italy will remain constant at its 1995 size of 57.3 million persons. A total of 12.9 million net migrants between 1995 and 2050 would be required to attain this goal. The annual net immigration would increase steadily from 75,000 in 1995-2000 to 318,000 in 2045-2050. Under this scenario, by 2050 a total of 16.6 million persons, or about 29 per cent of the population, would be post-1995 immigrants or their descendants.

(e) *Scenario IV*

This scenario assumes that Italy's population aged 15-64 would remain constant at its 1995 level of 39.2 million, stopping the decline in the size of this age group. To achieve this objective, 19.6 million immigrants would be needed between 1995 and 2050. The average annual number of migrants would

vary, reaching a peak of 613,000 persons per year between 2025 and 2030 and then declining to 173,000 per year in 2045-2050. Under this scenario, the population of Italy would grow by 16 per cent from 57.3 million in 1995 to 66.4 million in 2050. By the year 2050, 39 per cent of the population would be post-1995 migrants or their descendants. The potential support ratio would decrease from 4.1 in 1995 to 2.2 in 2050.

(f) *Scenario V*

Scenario V does not allow the potential support ratio to decrease below the value of 3.0. In order to achieve this, no immigrants would be needed until 2010, and 34.9 million immigrants would be needed between 2010 and 2040, an average of 1.2 million per year during that period. By 2050, out of a total population of 87.3 million, 46.6 million, or 53 percent, would be post-1995 immigrants or their descendants.

(g) *Scenario VI*

Scenario VI keeps the potential support ratio at its 1995 level of 4.08. A total of 120 million immigrants between 1995 and 2050 would be required to maintain this constant ratio, yielding an overall average of 2.2 million immigrants per year. The resultant population of Italy in 2050 under this scenario would be 194 million, more than three times the size of the Italian population in 1995. Of this population, 153 million, or 79 per cent, would be post-1995 immigrants or their descendants.

(h) *Additional considerations*

In 1995-2000, Italy's population growth rate was estimated at –0.01 per cent. This decline in population was expected despite a net immigration of 70,000 persons per year. The number of foreign-born in Italy has almost doubled, from 821,000 in 1965 (1.6 per cent of the total population) to 1.5 million in 1995 (2.7 per cent of the population). According to Scenario III, to keep Italy's population from declining from its 1995 size, annual migration flows would have to be, on average, more than three times as large between 1995 and 2050 as they were between 1990 and 1995. To keep the population of working-age from declining would require more than five times the 1990-1995 annual level of migration. In addition, for scenarios III and IV, the proportion of Italy's population in 2050 that would be made up of post-1995 immigrants or their descendants, 29 per cent and 39 per cent respectively, is more than 10 times the proportion of the foreign-born population in 1995. Figure 13 shows, for scenarios I, II, III and IV, the population of Italy in 2050, indicating the share that comprises post-1995 migrants and their descendants.

The demographic changes are even greater in scenario VI. This scenario requires more than twice as many immigrants between 1995 and 2050 as the total 1995 population of the country. Moreover, nearly four fifths of the resulting 2050 population of 194 million would be made up of post-1995 immigrants or their descendants.

In the absence of migration, the figures show that it would be necessary to increase working age to 74.7 years to obtain a potential support ratio of 3.0 in 2050. To maintain in 2050 the 1995 ratio of 4.1 persons in working-age for each older person past working-age would require increasing the upper limit of the working-age span to 77 years by 2050. Increasing the activity rates of the population, if it were possible, would only be a partial palliative to the decline in support ratio due to ageing. If the activity rates of all men and women aged 25 to 64 were to increase to 100 per cent by 2050, this would make up for only 30 per cent of the loss in the active support ratio resulting from the ageing of the population.

TABLE 20. POPULATION INDICATORS FOR ITALY BY PERIOD FOR EACH SCENARIO

Scenario	*I*	*II*	*III*	*IV*	*V*	*VI **
Period	*Medium variant*	*Medium variant with zero migration*	*Constant total population*	*Constant age group 15-64*	*Ratio 15-64/65+ not less than 3.0*	*Constant ratio 15-64/65 years or older*
			A. Average annual number of migrants (thousands)			
1995-2000	70	0	75	203	0	*1 261*
2000-2025	12	0	214	315	499	*1 310*
2025-2050	0	0	289	428	905	*3 225*
2000-2050	6	0	251	372	702	*2 268*
1995-2050	12	0	235	357	638	*2 176*
			B. Total number of migrants (thousands)			
1995-2000	350	0	375	1 015	0	*6 305*
2000-2025	310	0	5 340	7 887	12 465	*32 759*
2025-2050	0	0	7 229	10 709	22 623	*80 622*
2000-2050	310	0	12 569	18 596	35 088	*113 381*
1995-2050	660	0	12 944	19 610	35 088	*119 684*
			C. Total population (thousands)			
1950	47 104	-	-	-	-	-
1975	55 441	-	-	-	-	-
1995	57 338	-	-	-	-	-
2000	57 298	56 950	57 338	58 000	56 950	*63 477*
2025	51 270	50 679	57 338	61 064	64 383	*96 664*
2050	41 197	40 722	57 338	66 395	87 345	*193 518*
			D. Age group 0-14 (thousands)			
1950	12 397	-	-	-	-	-
1975	13 436	-	-	-	-	-
1995	8 483	-	-	-	-	-
2000	8 165	8 116	8 214	8 380	8 116	*9 760*
2025	5 871	5 802	7 246	8 013	9 181	*15 280*
2050	4 945	4 888	8 124	9 717	13 913	*35 615*
			E. Age group 15-64 (thousands)			
1950	30 817	-	-	-	-	-
1975	35 326	-	-	-	-	-
1995	39 234	-	-	-	-	-
2000	38 721	38 486	38 762	39 234	38 486	*43 139*
2025	32 026	31 659	36 506	39 234	41 401	*65 358*
2050	21 875	21 623	32 985	39 234	55 074	*126 808*
			F. Age group 65+ (thousands)			
1950	3 890	-	-	-	-	-
1975	6 678	-	-	-	-	-
1995	9 621	-	-	-	-	-
2000	10 412	10 349	10 362	10 386	10 349	*10 578*
2025	13 373	13 218	13 586	13 817	13 800	*16 026*
2050	14 377	14 211	16 230	17 444	18 358	*31 094*
			G. Potential support ratio 15-65/65+			
1950	7.92	-	-	-	-	-
1975	5.29	-	-	-	-	-
1995	4.08	-	-	-	-	-
2000	3.72	3.72	3.74	3.78	3.72	*4.08*
2025	2.39	2.40	2.69	2.84	3.00	*4.08*
2050	1.52	1.52	2.03	2.25	3.00	*4.08*

** Scenario VI is considered to be demographically unrealistic.*

Figure 12. Age-sex structures by scenario for 2000, 2025 and 2050
(*Population in millions*)

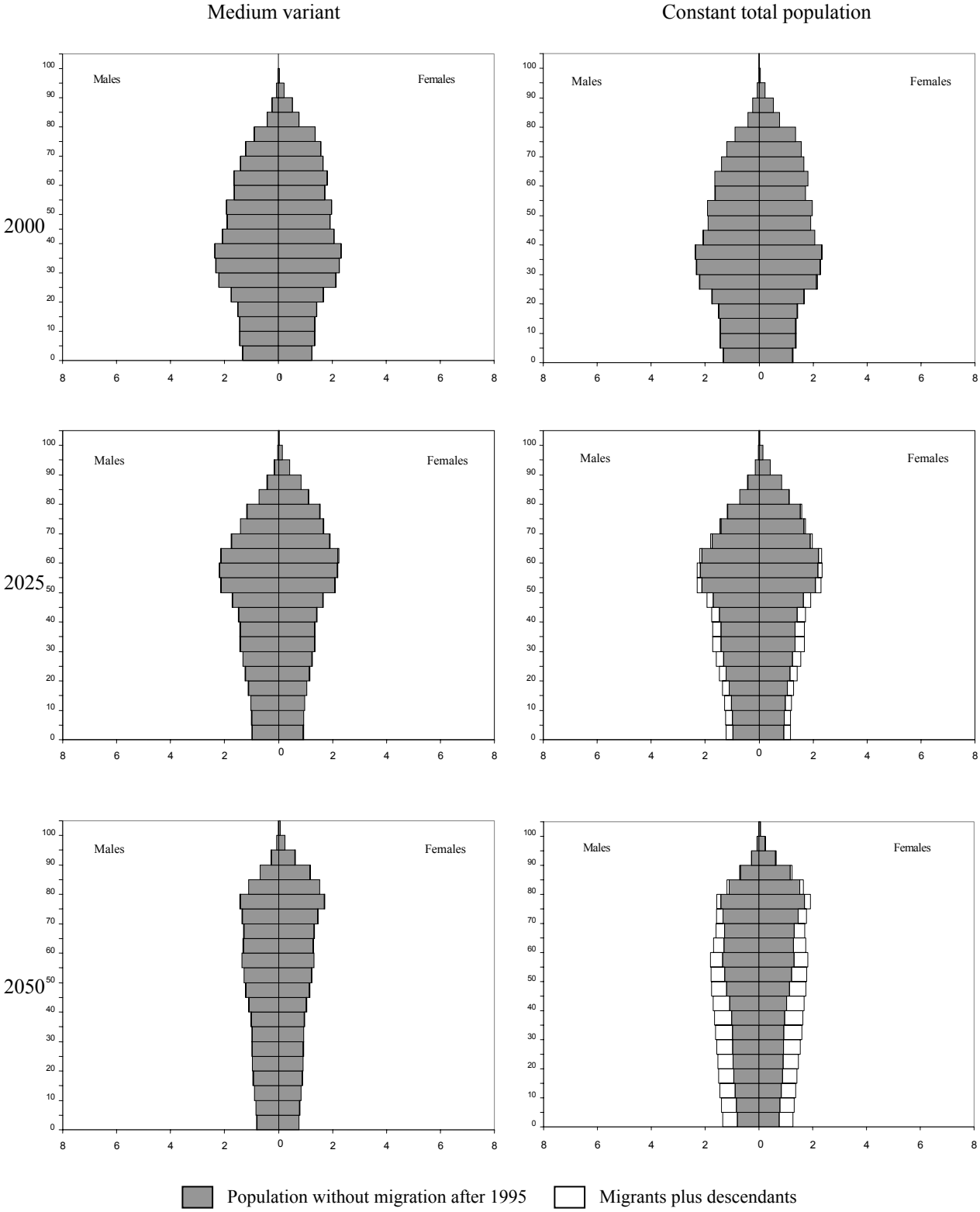


Figure 12 (continued)

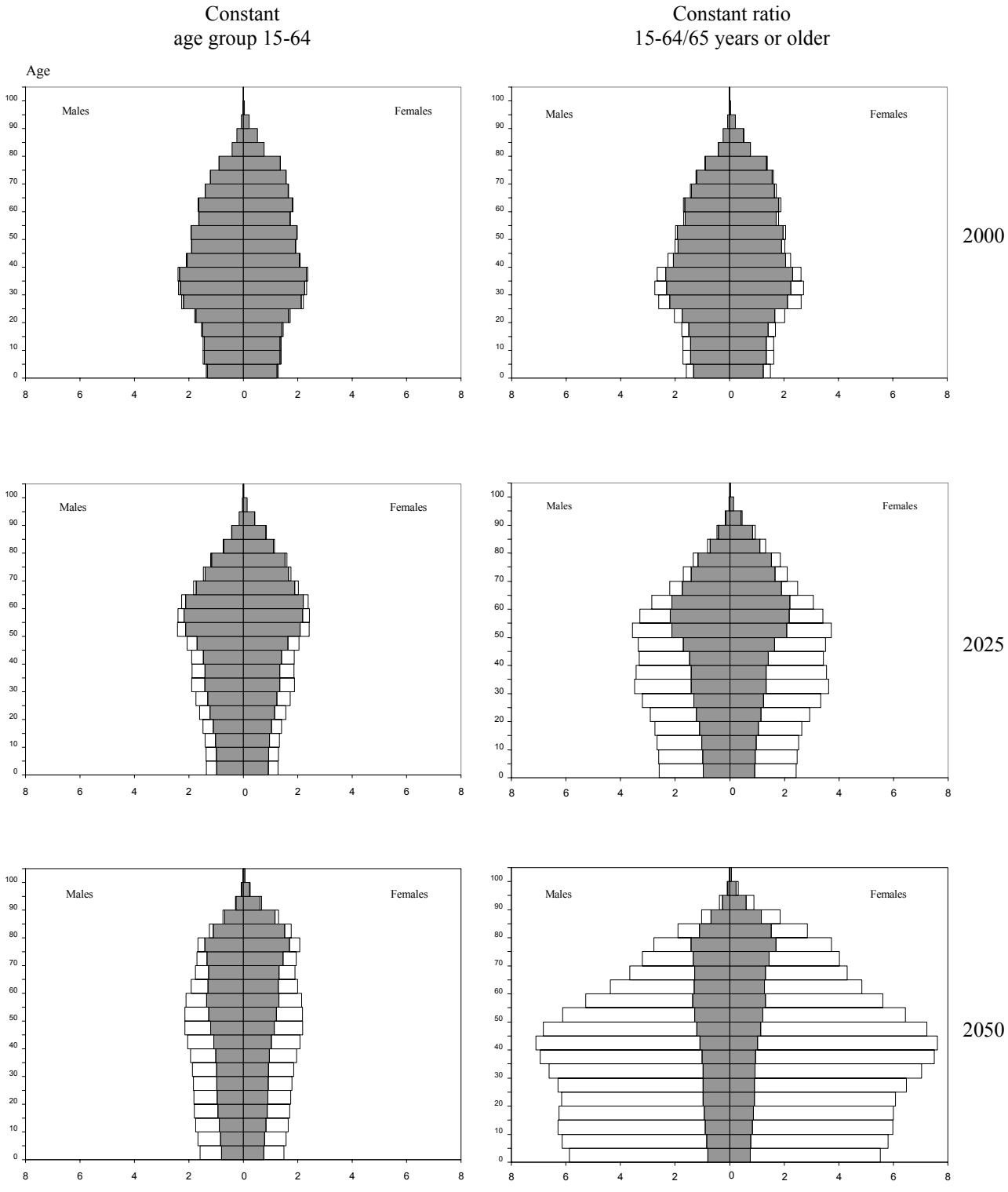
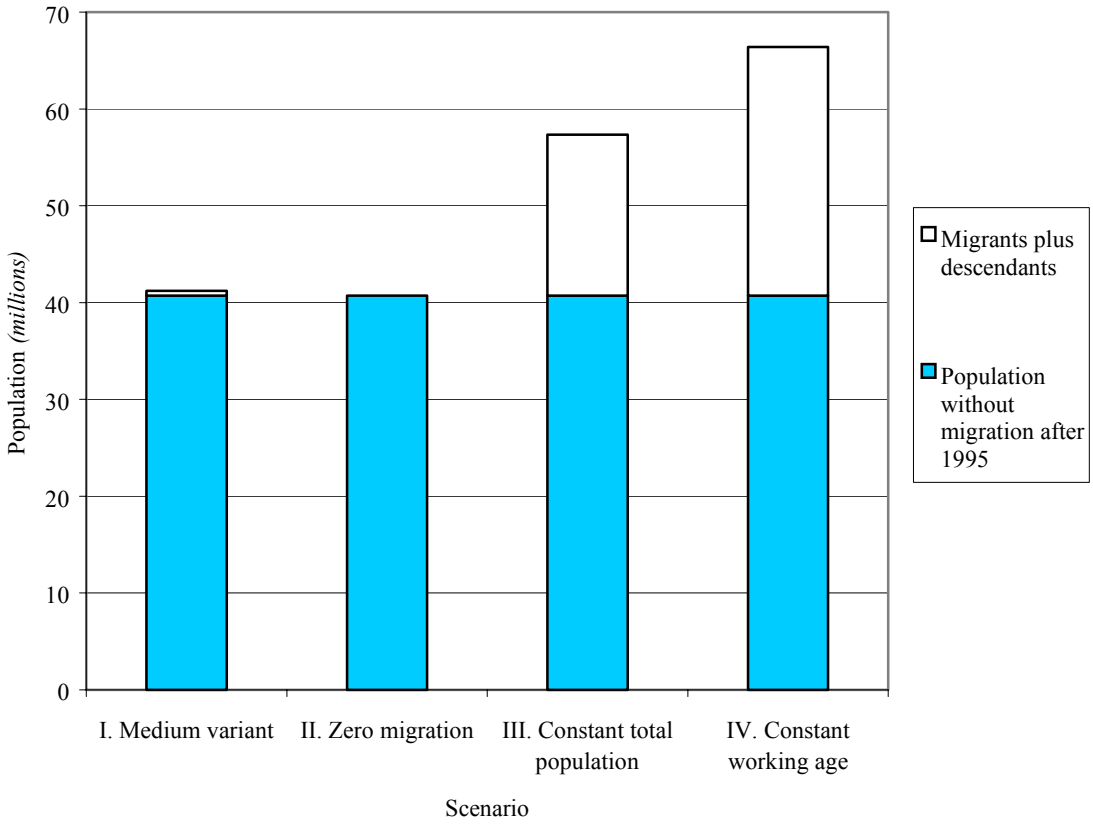


Figure 13. Population of Italy in 2050, indicating those who are post-1995 migrants and their descendants, by scenario



4. *Japan*

(a) *Past trends*

The total fertility rate in Japan fell from 2.75 births per woman in 1950-1955 to 2.08 births in 1955-1960. Total fertility remained at the near-replacement level between 1960 and 1975, and it resumed falling slowly, reaching 1.49 births in 1990-1995. During the same period, the life expectancy at birth for both sexes combined increased markedly, from 63.9 years in 1950-1955 to 79.5 years in 1990-1995. The fertility decline and the increase in life expectancy in Japan brought about an increase in the proportion of the elderly. In 1995, the retired-age population (65 years old and over) represented 14.6 per cent of the total population, as compared to only 4.9 per cent in 1950. The ratio of the working-age population (15-64 years old) to the retired-age population increased from 11.0 in 1920 to 12.2 in 1950. It later decreased rapidly, to 4.8 in 1995. The notable increase in the median age of the population, from 22.3 years old in 1950 to 39.7 years old in 1995, is also indicative of the rapid demographic ageing that has taken place in Japan.

(b) *Scenario I*

The 1998 United Nations population projection assumes no net immigration to Japan from 1995 through 2050. According to the medium variant projection, the population of Japan would increase from 125.5 million in 1995 and reach its peak in 2005 at 127.5 million. Then the population would decline to 104.9 million by 2050 (the results of the 1998 United Nations projections are shown in the annex tables). The working age population (15-64 years old) of Japan is projected to decline continuously, from 87.2 million in 1995 to 57.1 million in 2050. The population aged 65 or older would increase from 18.3 million in 1995 to 34.0 million in 2045 and then decrease slightly to 33.3 million in 2050. As a result, the percentage of population aged 65 or older in the total population would more than double, from 14.6 per cent in 1995 to 31.8 per cent in 2050. The ratio of the working-age population to the retired-age population would continue declining, from 4.8 in 1995 to 2.2 in 2025 and 1.7 in 2050.

(c) *Scenario II*

As the United Nations *1998 Revision* assumes zero net migration in carrying out the population projections for Japan, scenarios I and II yield the same results.

(d) *Scenario III*

According to the medium variant projection of the United Nations *1998 Revision*, the population of Japan would reach a maximum of 127.5 million in 2005. If Japan wishes to keep the size of its population at the level attained in the year 2005, the country would need 17 million net immigrants up to the year 2050, or an average of 381,000 immigrants per year between 2005 and 2050. By 2050, the immigrants and their descendants would total 22.5 million and comprise 17.7 per cent of the total population of the country.

(e) *Scenario IV*

In order to keep the size of the working-age population constant at the 1995 level of 87.2 million, Japan would need 33.5 million immigrants from 1995 through 2050. This means an average of 609,000 immigrants are needed per year during this period. Under this scenario, the population of the country is projected to be 150.7 million by 2050. The number of post-1995 immigrants and their descendants would be 46 million, accounting for 30 per cent of the total population in 2050.

(f) *Scenario V*

Scenario V does not allow the potential support ratio to decrease below the value of 3.0. In order to achieve this, no immigrants would be needed until 2005, and 94.8 million immigrants would be needed between 2005 and 2050, an average of 2.1 million per year during that period. By 2050, out of a total population of 229 million, 124 million, or 54 per cent, would be post-1995 immigrants or their descendants.

(g) *Scenario VI*

This scenario keeps the ratio of the working-age population to the retired-age population at its 1995 level of 4.8. In order to keep this level of potential support ratio, the country would need 553 million immigrants during 1995 through 2050, or an average of 10 million immigrants per year. Under this scenario, the population of Japan is projected to be 818 million in 2050, and 87 per cent of them would be the post-1995 immigrants and their descendants.

(h) *Additional considerations*

The population of Japan aged faster between 1950 and 2000 than the populations of other developed countries owing to a rapid process of demographic change that consisted of declines in fertility and increases in survivorship. Under the assumption of zero immigration in the future, the total population as well as the working-age population of Japan is projected to decline continuously during most of the first half of the twenty-first century. Scenario III examined above suggests that, if the loss of population were to be prevented through immigration, 17.7 per cent of the population would be composed of immigrants and their descendants by 2050. Similarly, 30.4 per cent of the population would be made up of immigrants and their descendants by 2050 if the country wished to maintain the size of working-age population constant. In comparison, the proportion of foreigners among the total population is barely one per cent today. Figure 15 shows, for scenarios I, II, III and IV, the population of Japan in 2050, indicating the share that would be post-1995 migrants and their descendants.

Furthermore, if the potential support ratio were kept constant at the 1995 level, 553 million immigrants, or a number more than four times as large as the current population of the country, would be needed from 1995 through 2050. In addition, 87 per cent of the resulting population in 2050 would be immigrants and their descendants. These unlikely results suggest that substantial ageing of the population, in terms of a decline in the potential support ratio, is inevitable even if Japan increases immigration greatly.

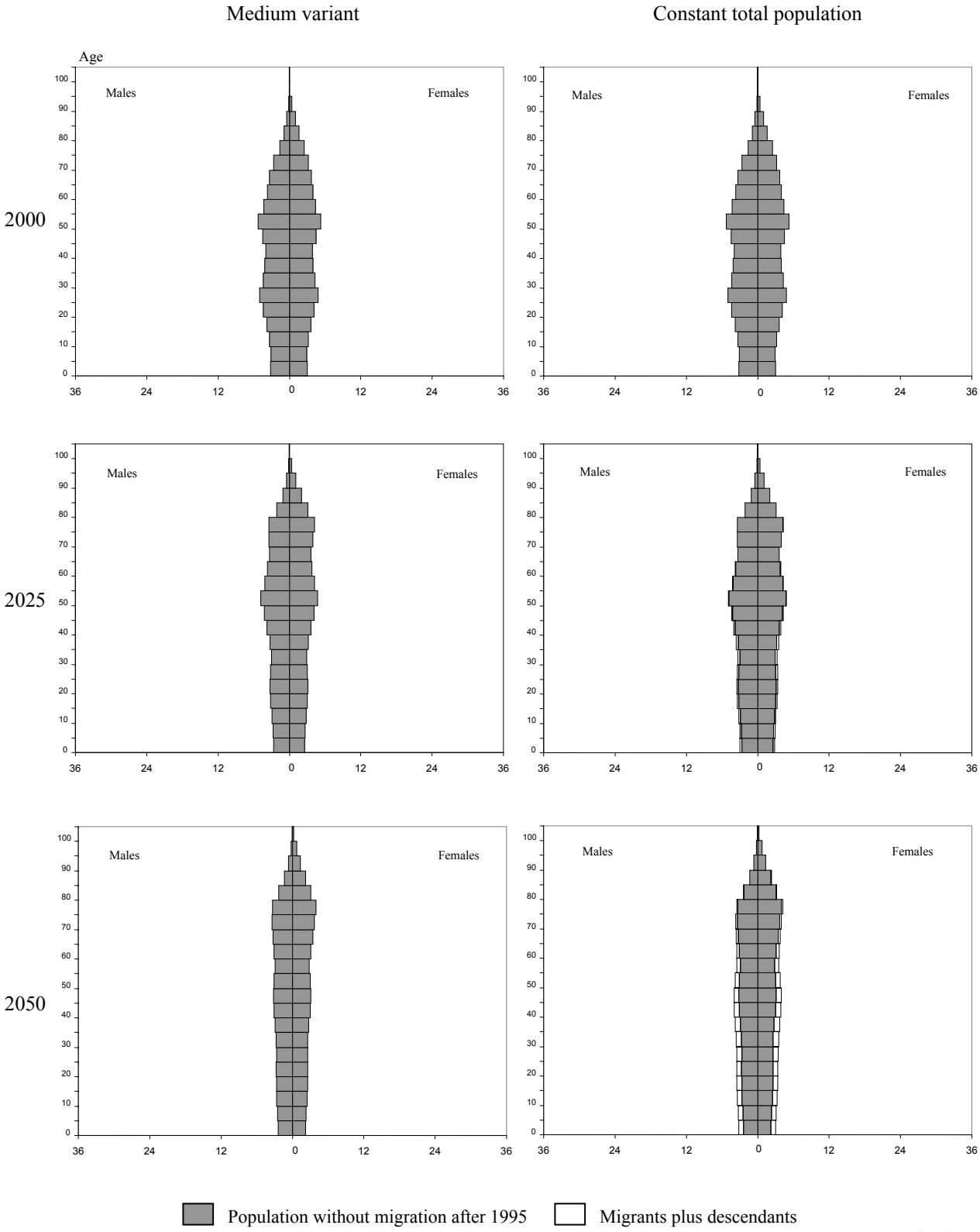
In the absence of migration, the figures show that it would be necessary to raise the upper limit of the working age in Japan to 72.4 years to obtain a potential support ratio of 3.0 in 2050. This limit would need to increase to about 77 years in order to obtain in 2050 the same potential support ratio observed in 1995, which was 4.8 persons of working age per each older person past working age. Increasing the activity rates of the population, should it be possible, would only be a partial palliative to the decline in support ratio due to ageing. If the activity rates of all men and women aged 25 to 64 increased to 100 per cent by 2050, this would make up for only 15 per cent of the loss in the active support ratio resulting from the ageing of the population.

TABLE 21. POPULATION INDICATORS FOR JAPAN BY PERIOD FOR EACH SCENARIO

Scenario	*I*	*II*	*III*	*IV*	*V*	*VI **
Period	*Medium variant*	*Medium variant with zero migration*	*Constant total population*	*Constant age group 15-64*	*Ratio 15-64/65+ not less than 3.0*	*Constant ratio 15-64/65 years or older*
			A. Average annual number of migrants (thousands)			
1995-2000	0	0	0	231	0	*5 990*
2000-2025	0	0	221	615	1 502	*5 183*
2025-2050	0	0	464	679	2 292	*15 758*
2000-2050	0	0	343	647	1 897	*10 471*
1995-2050	0	0	312	609	1 724	*10 064*
			B. Total number of migrants (thousands)			
1995-2000	0	0	0	1 155	0	*29 950*
2000-2025	0	0	5 535	15 366	37 548	*129 587*
2025-2050	0	0	11 606	16 965	57 288	*393 957*
2000-2050	0	0	17 141	32 332	94 837	*523 543*
1995-2050	0	0	17 141	33 487	94 837	*553 495*
			C. Total population (thousands)			
1950	83 625	-	-	-	-	-
1975	111 524	-	-	-	-	-
1995	125 472	-	-	-	-	-
2000	126 714	126 714	126 714	127 923	126 714	*158 061*
2025	121 150	121 150	127 457	141 877	166 849	*323 376*
2050	104 921	104 921	127 457	150 697	229 021	*817 965*
			D. Age group 0-14 (thousands)			
1950	29 643	-	-	-	-	-
1975	27 109	-	-	-	-	-
1995	20 019	-	-	-	-	-
2000	18 765	18 765	18 765	19 078	18 765	*26 888*
2025	16 349	16 349	17 994	21 065	27 897	*60 256*
2050	14 511	14 511	19 297	23 619	41 266	*170 785*
			E. Age group 15-64 (thousands)			
1950	49 847	-	-	-	-	-
1975	75 625	-	-	-	-	-
1995	87 188	-	-	-	-	-
2000	86 335	86 335	86 335	87 188	86 335	*108 454*
2025	72 418	72 418	76 803	87 188	104 213	*217 547*
2050	57 087	57 087	72 908	87 188	140 816	*535 088*
			F. Age group 65+ (thousands)			
1950	4 135	-	-	-	-	-
1975	8 790	-	-	-	-	-
1995	18 264	-	-	-	-	-
2000	21 614	21 614	21 614	21 657	21 614	*22 719*
2025	32 383	32 383	32 660	33 624	34 738	*45 572*
2050	33 323	33 323	35 253	39 890	46 939	*112 092*
			G. Potential support ratio 15-4/65+			
1950	12.05	-	-	-	-	-
1975	8.60	-	-	-	-	-
1995	4.77	-	-	-	-	-
2000	3.99	3.99	3.99	4.03	3.99	*4.77*
2025	2.24	2.24	2.35	2.59	3.00	*4.77*
2050	1.71	1.71	2.07	2.19	3.00	*4.77*

** Scenario VI is considered to be demographically unrealistic.*

Figure 14. Age-sex structures by scenario for 2000, 2025 and 2050
(*Population in millions*)



JAPAN

Figure 14 (continued)

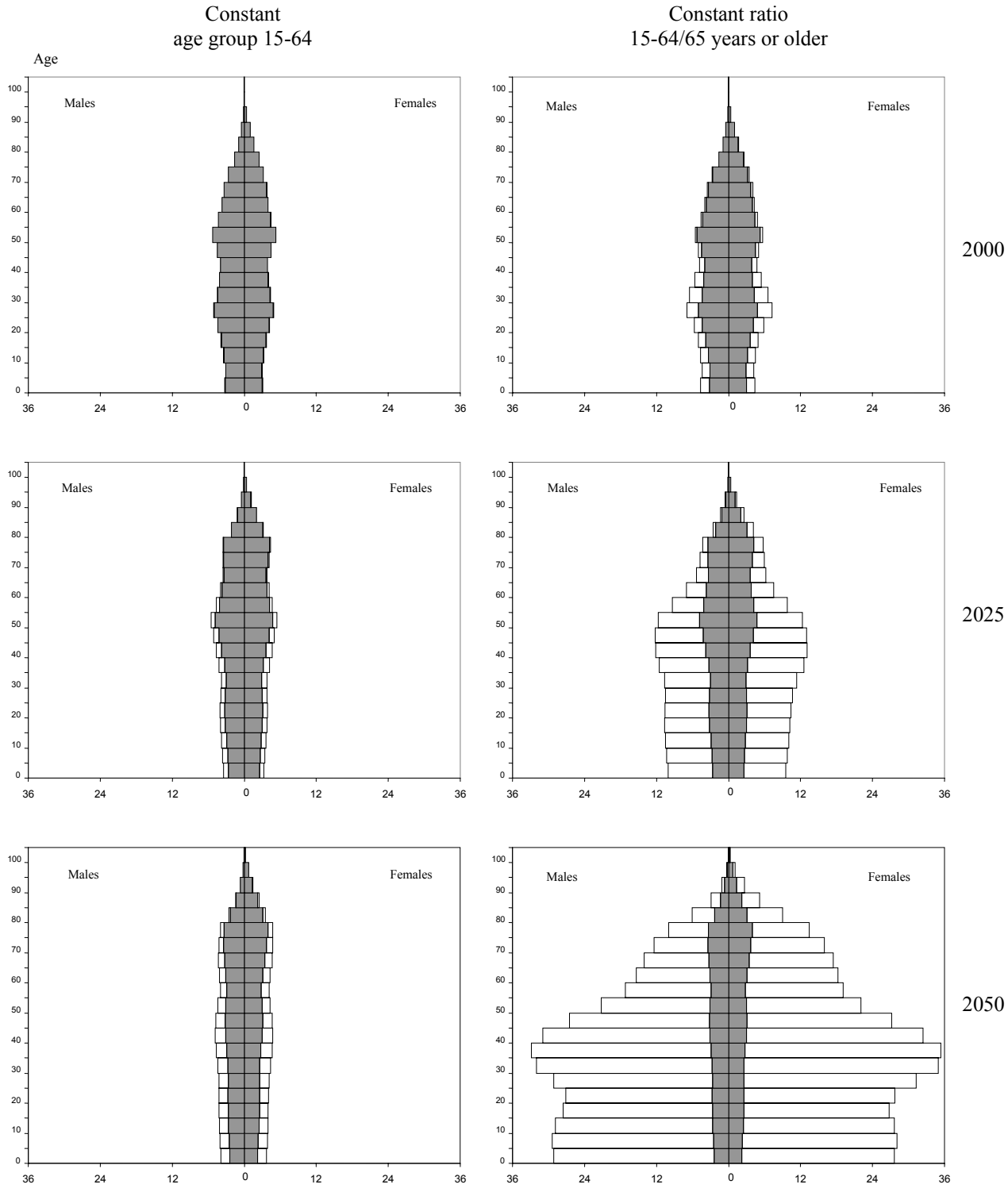
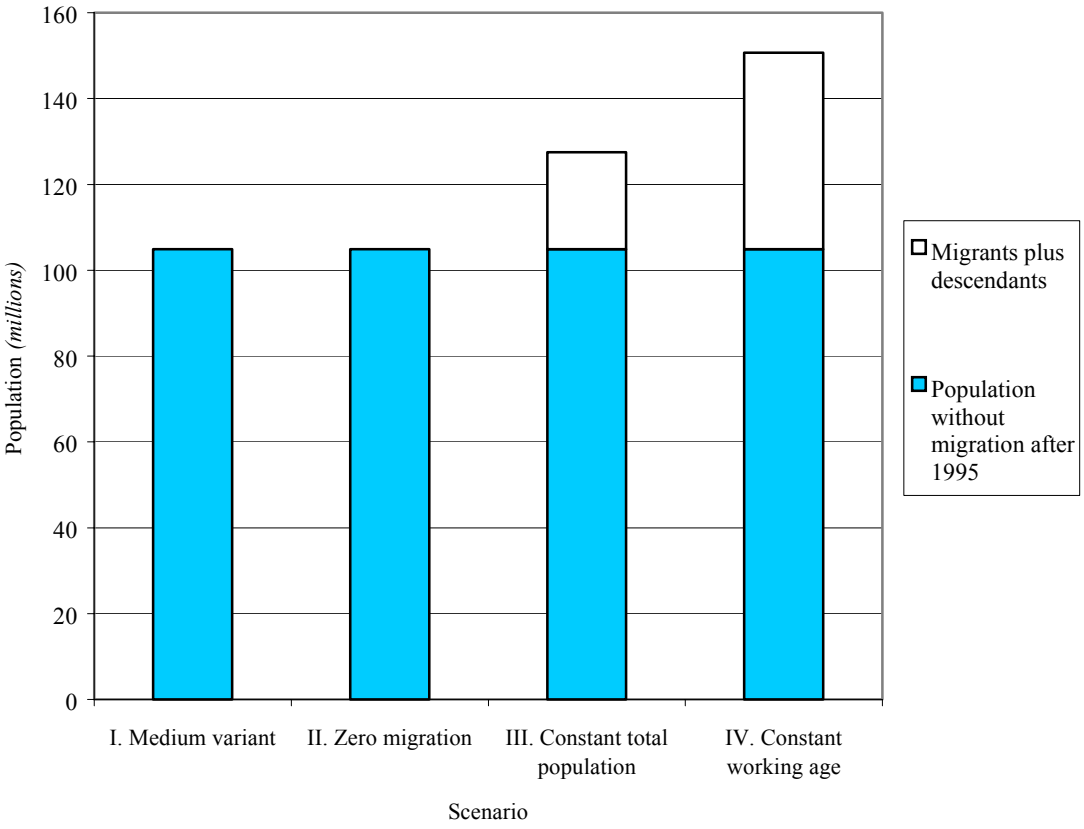


Figure 15. Population of Japan in 2050, indicating those who are post-1995 migrants and their descendants, by scenario



5. *Republic of Korea*

(a) *Past trends*

The total fertility rate in the Republic of Korea increased from 5.40 births per woman in 1950-1955 to 6.33 births in 1955-1960 as a result of the baby boom that followed immediately after the Korean War. However, the total fertility of the country showed a sharp decline thereafter, down to 4.28 births in 1970-1975, to 2.50 births in 1980-1985 and to 1.70 births in 1990-1995. Owing to significant declines in mortality over time, life expectancy at birth for both sexes combined increased from 47.5 years in 1950-1955 to 70.9 years in 1990-1995. The proportion of the elderly (aged 65 or older) in the total population remained between 3.0 and 4.0 per cent between 1950 and 1980 and started increasing slowly thereafter, reaching 5.6 per cent by 1995. The potential support ratio of the country dropped from 18.4 to 12.6 between 1950 and 1995.

(b) *Scenario I*

The Republic of Korea has been until recently a country of emigration. The medium variant of the United Nations *1998 Revision* assumes a net total of 450,000 emigrants from the country between 1995 and 2020 and none thereafter. Thus, it was projected that the population of the country would increase from 44.9 million in 1995 to 53.0 million in 2035, and then decline to 51.3 million in 2050 (the results of the 1998 United Nations projections are shown in the annex tables.) The working-age population of the country is projected to increase from 31.9 million in 1995 to 36.3 million in 2020, and then decrease to 30.4 million by 2050. The population aged 65 or older would continue to increase rapidly between 1995 and 2050, from 2.5 million to 12.7 million. As a result of these changes, the potential support ratio in the country would drop extremely rapidly, passing from 12.6 in 1995 to 5.7 in 2020 and to 2.4 in 2050.

(c) *Scenario II*

Scenario II assumes that the population in the Republic of Korea would change according to the fertility and mortality assumptions of the medium variant of the United Nations *1998 Revision*, but with net zero migration from 1995 through 2050. This scenario yields results very similar to those of scenario I. The total population of the country would keep growing from 44.9 million in 1995 to 53.5 million in 2035, and then decrease to 51.8 million in 2050. The size of the population aged 15-64 would peak at 36.6 million in 2020, rising from 31.9 million in 1995. Then, it would decline to 30.7 million in 2050. The population aged 65 years or older is projected to grow five-fold, from 2.5 million in 1995 to 12.8 million in 2050. As in scenario I, the potential support ratio of the country would drop extremely rapidly from 12.6 in 1995 to 2.4 in 2050.

(d) *Scenario III*

If no migration occurred after 1995, the population of the Republic of Korea would reach a maximum in 2035 at 53.5 million. In order to keep the size of the total population constant at that level thereafter, it would be necessary to have 1.5 million net immigrants between 2035 and 2050, or an average of 100,000 per year during that period. By 2050, out of a total population of 53.5 million, 1.7 million or 3.2 per cent, would be immigrants and their descendants.

(e) *Scenario IV*

In order to keep the size of the working age population (15-64 years old) constant at its maximum of 36.6 million in 2020, the Republic of Korea would need a total of 6.4 million immigrants between 2020

and 2050, or an average of 213,000 per year. By 2050, out of a total population of 60.1 million, 8.4 million, or 13.9 per cent, would be post-1995 immigrants and their descendants.

(f) *Scenario V*

Scenario V does not allow the potential support ratio to decrease below the value of 3.0. In order to do so, no immigrants would be needed until 2035, and 11.6 million immigrants would be needed between 2035 and 2050, an average of 0.8 million per year during that period. By 2050, out of a total population of 65.7 million, 14.0 million, or 21 per cent, would be post-1995 immigrants or their descendants.

(g) *Scenario VI*

In order to keep the ratio of the working-age population to the population aged 65 years or older at its 1995 level of 12.6, it would be necessary to have a total of 5.1 billion immigrants from 1995 through 2050, or an average of 94 million per year. This number is enormous because the initial level of the potential support ratio, 12.6, is relatively high. Under this scenario, the total population of the country is projected to be 6.2 billion in 2050, of which over 99 per cent would be post-1995 immigrants and their descendants.

(h) *Additional considerations*

The pace of population ageing in the Republic of Korea is projected to be one of the fastest in the world. With zero immigration in the future, the proportion aged 65 or older in the total population would increase from 5.6 per cent to 24.7 per cent between 1995 and 2050. The proportion of elderly would be 24.0 per cent in 2050, only slightly smaller, if immigration kept the size of the total population constant at its maximum in 2035. Similarly, the proportion of elderly would be 22.1 per cent if the size of the working-age population remained at its maximum in 2020. Thus, under these scenarios, the impact of immigration on population ageing in the country would be minimal. Figure 17 shows, for scenarios I, II, III and IV, the population of the Republic of Korea in 2050, indicating the share that comprises post-1995 migrants and their descendants.

The number of immigrants needed to maintain the potential support ratio at its 1995 level (scenario VI) is 110 times the size of the current national population and approximately equal to the current total population of the world. This extreme result indicates that the 1995 level of the potential support ratio is transitional and will be considerably lower in the future, irrespective of migration flows.

In the absence of migration, the figures show that it would be necessary to raise the upper limit of the working-age to 67.6 years to obtain a potential support ratio of 3.0 in 2050, and to about 82 years in order to obtain in 2050 the same potential support ratio observed in 1995 in the Republic of Korea, which was 12.6 persons of working-age per each person aged 65 years or older. Increasing the activity rates of the population, if it were possible, would only be a partial palliative to the decline in the support ratio due do ageing. If the activity rates of all men and women aged 25 to 64 increased to 100 per cent by 2050, this would make up for only 8 per cent of the loss in the active support ratio resulting from the ageing of the population.

TABLE 22. POPULATION INDICATORS FOR REPUBLIC OF KOREA BY PERIOD FOR EACH SCENARIO

Scenario	*I*	*II*	*III*	*IV*	*V*	*VI **
Period	*Medium Variant*	*Medium variant with zero migration*	*Constant total population*	*Constant age group 15-64*	*Ratio 15-64/65+ not less than 3.0*	*Constant ratio 15-64/65 years or older*
			A. Average annual number of migrants (thousands)			
1995-2000	-20	0	0	0	0	*4 156*
2000-2025	-14	0	0	41	0	*15 151*
2025-2050	0	0	60	216	464	*189 975*
2000-2050	-7	0	30	129	232	*102 563*
1995-2050	-8	0	27	117	211	*93 617*
			B. Total number of migrants (thousands)			
1995-2000	-100	0	0	0	0	*20 780*
2000-2025	-350	0	0	1 034	0	*378 765*
2025-2050	0	0	1 509	5 392	11 595	*4 749 382*
2000-2050	-350	0	1 509	6 426	11 595	*5 128 147*
1995-2050	-450	0	1 509	6 426	11 595	*5 148 928*
			C. Total population (thousands)			
1950	20 357	-	-	-	-	-
1975	35 281	-	-	-	-	-
1995	44 949	-	-	-	-	-
2000	46 844	46 946	46 946	46 946	46 946	*68 768*
2025	52 533	53 020	53 020	54 119	53 020	*522 908*
2050	51 275	51 751	53 470	60 125	65 736	*6 233 275*
			D. Age group 0-14 (thousands)			
1950	8 479	-	-	-	-	-
1975	13 318	-	-	-	-	-
1995	10 540	-	-	-	-	-
2000	10 068	10 091	10 091	10 091	10 091	*15 886*
2025	8 956	9 040	9 040	9 338	9 040	*128 197*
2050	8 209	8 285	8 752	10 205	12 043	*1 571 113*
			E. Age group 15-64 (thousands)			
1950	11 257	-	-	-	-	-
1975	20 690	-	-	-	-	-
1995	31 882	-	-	-	-	-
2000	33 623	33 696	33 696	33 696	33 696	*48 998*
2025	35 557	35 886	35 886	36 649	35 886	*365 720*
2050	30 401	30 685	31 867	36 649	40 270	*4 319 740*
			F. Age group 65+ (thousands)			
1950	620	-	-	-	-	-
1975	1 273	-	-	-	-	-
1995	2 527	-	-	-	-	-
2000	3 152	3 159	3 159	3 159	3 159	*3 884*
2025	8 020	8 094	8 094	8 131	8 094	*28 990*
2050	12 665	12 781	12 851	13 270	13 423	*342 421*
			G. Potential support ratio 15-64/65+			
1950	18.16	-	-	-	-	-
1975	16.25	-	-	-	-	-
1995	12.62	-	-	-	-	-
2000	10.67	10.67	10.67	10.67	10.67	*12.62*
2025	4.43	4.43	4.43	4.51	4.34	*12.62*
2050	2.40	2.40	2.48	2.76	3.00	*12.62*

** Scenario VI is considered to be demographically unrealistic.*

Figure 16. Age-sex structures by scenario for 2000, 2025 and 2050
(*Population in millions*)

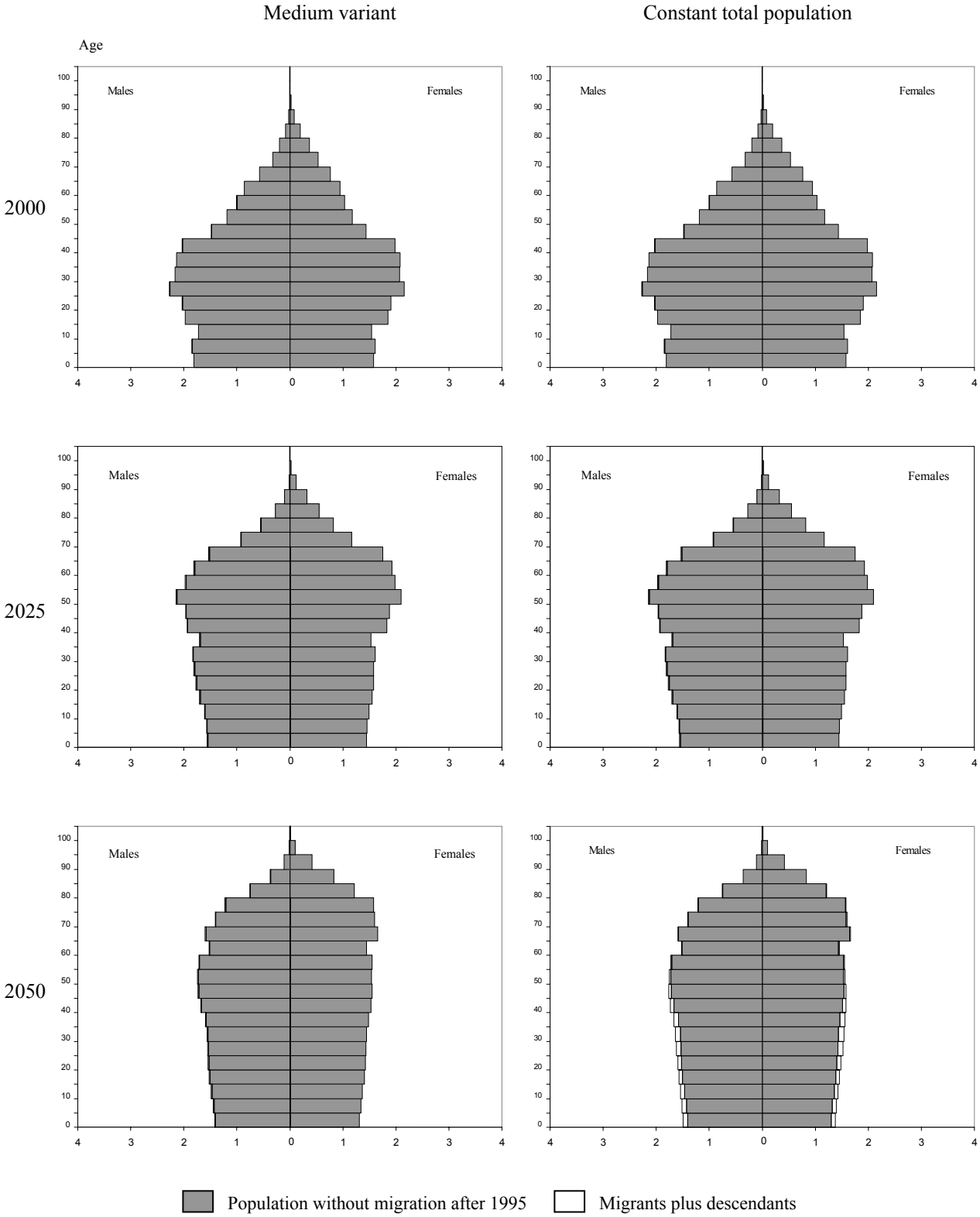
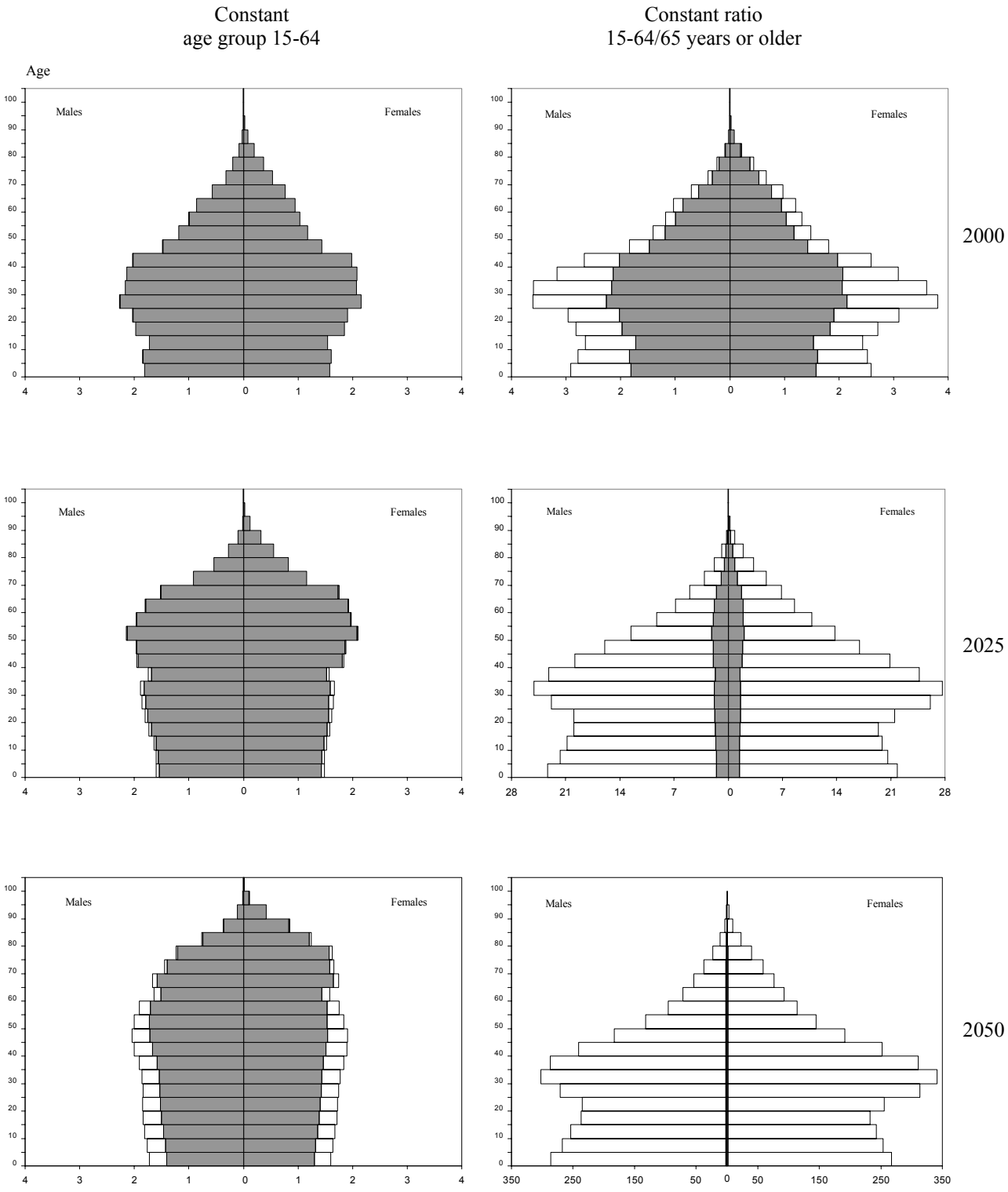
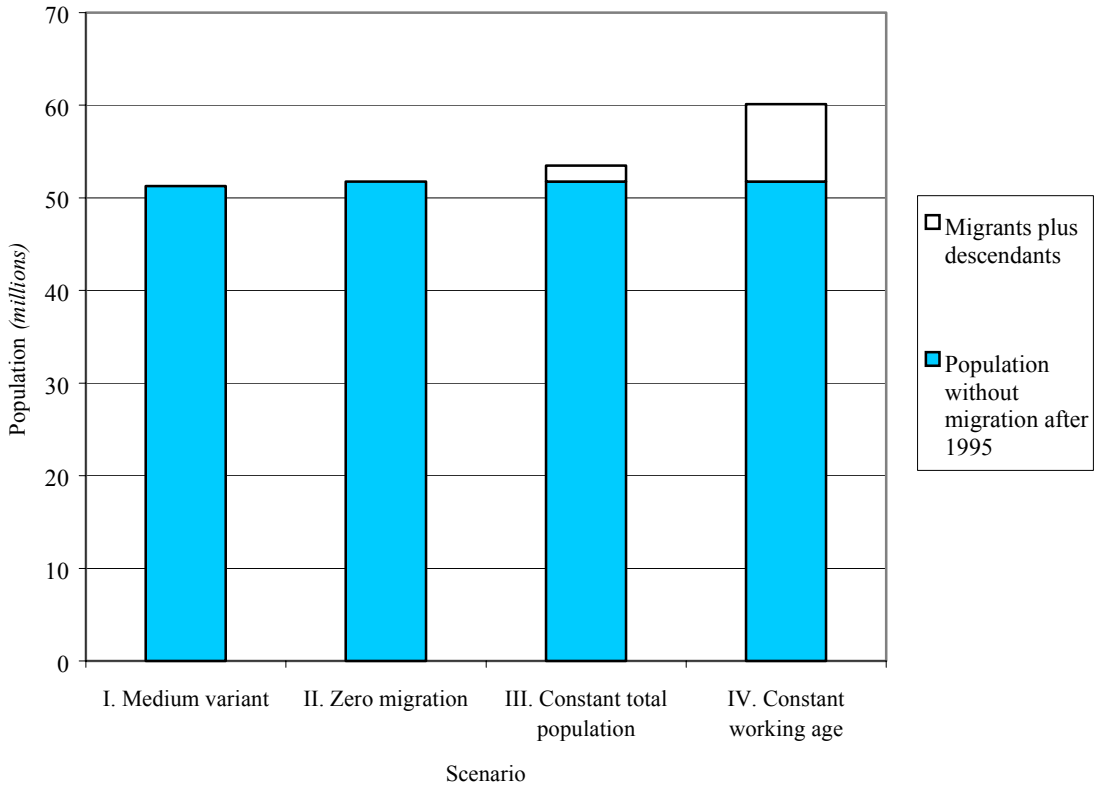


Figure 16 (continued)



NOTE: For the constant ratio scenario, the age-sex structures in 2025 and 2050 have different scales from the other scenarios.

Figure 17. Population of the Republic of Korea in 2050, indicating those who are post-1995 migrants and their descendants, by scenario



NOTE: The population in scenario I is slightly smaller than in scenario II because of net out migration.

6. *Russian Federation*

(a) *Past trends*

At a total fertility rate of 2.51 children per woman, fertility in the Russian Soviet Federal Socialist Republic in 1950-1955 was only slightly higher than the average fertility in Western Europe and Northern Europe. Its life expectancy at birth of 67.3 years in 1950-1955 was similar to the average for Western Europe. Fertility stayed above replacement levels until 1965, but dropped to 1.50 children per woman in the Russian Federation in 1990-1995 and to 1.35 in 1995-2000. Mortality levels have stagnated, or increased over much of the period since 1965, especially among adult males. As a result, the 1995-2000 life expectancy at birth of 66.6 years was lower than the 1950-1955 level. Nevertheless, the proportion of the population aged 65 years or older increased from 6 per cent in 1950 to 12 per cent in 1995. The share of the population aged 15 to 64 years also increased slightly, from 65 per cent in 1950 to 67 per cent in 1995. The potential support ratio, which was 10 persons aged 15-64 years for each person aged 65 or older in 1950, declined to 6 in 1995.

(b) *Scenario I*

This scenario, which is the medium variant of the United Nations *1998 Revision*, assumes that 7.4 million net migrants would enter the Russian Federation between 1995 and 2050: 2.0 million from 1995 to 2000, 4.1 million from 2000 to 2025 and 1.4 million from 2025 to 2050. As a result of low fertility, the population of the Russian Federation is projected to decline from 148.1 million in 1995 to 121.3 million in 2050. By 2050, 6 per cent of the total population would be post-1995 migrants or their descendants (the results of the 1998 United Nations projections are shown in the annex tables). The population aged 15-64 would increase slightly, from 99.2 million in 1995 to 103.0 million in 2010, and then decline to 73.6 million by 2050. One quarter of the population of the Russian Federation in 2050 would be aged 65 years or older. Owing to the unevenness of the age structure, the potential support ratio would decrease from its level of 6 in 1995 to 5.0 in 2005 and increase again after 2005 to 6 in 2010. After 2010, the potential support ratio would decline by more than half, to 2 by 2050.

(c) *Scenario II*

Scenario II uses the fertility and mortality assumptions of the medium variant of the United Nations *1998 Revision*, but assumes zero migration after 1995. Under these conditions, the population of the Russian Federation would decline faster than in Scenario I. There will be 114.2 million people in 2050, 7.1 million fewer than in Scenario I. The number of persons aged 15-64 is also projected to start declining 5 years earlier than under Scenario I, from 100.5 million in 2000 to 69.2 million in 2050. However, the share of the total population above age 65 would still be about 25 per cent in 2050, and the potential support ratio would be 2 in that year.

(d) *Scenario III*

Scenario III holds the population of Russia constant at its 1995 size of 148.1 million, preventing it from declining further. In order to do so, 25 million net migrants would be needed between 2000 and 2050, an average of 500,000 immigrants per year. By 2050, out of a total population of 148.1 million, 33.9 million, or 23 per cent, would be post-1995 immigrants or their descendants. By 2050 the potential support ratio would be 3.

(e) *Scenario IV*

Scenario IV keeps the size of the population aged 15-64 constant at its maximum of 100.5 million, reached in 2000. To attain this, a total of 36 million net migrants would be needed from 2000 to 2050. The average net migration would need to be 91,000 per year between 2000 and 2010, and 871,000 per year between 2010 and 2050. This scenario would result in a total population of 158 million in 2050, of which 43.8 million, or 28 per cent, would consist of post-1995 immigrants or their descendants. The potential support ratio in 2050 would be 3.

(f) *Scenario V*

Scenario V does not allow the potential support ratio to decrease below the value of 3.0. In order to achieve this, no immigrants would be needed until 2035, and 26.6 million immigrants would be needed between 2035 and 2050, an average of 1.8 million per year during that period. By 2050, out of a total population of 143 million, 29 million, or 20 per cent, would be post-1995 immigrants or their descendants.

(g) *Scenario VI*

This scenario keeps the potential support ratio at its 1995 value of 5.62. A total of 253 million net immigrants would be needed between 2000 and 2050, an overall average of 5.1 million per year. However, the average annual net migration required to maintain this ratio varies considerably over time, as two relatively small cohorts—those born between 1940 and 1945 and those born between 1965 and 1970—pass through their economically active years and into the 65 years or older group. In the period 2005-2010, the sharp decline in the number of persons aged 65 or older would require the emigration of some 3.6 million persons per year to keep the potential support ratio constant. Immigration would then resume after 2010. Under this scenario, by 2050, a total of 308 million persons, or 73 per cent of Russia's projected population of 422 million, would be post-1995 immigrants or their descendants.

(h) *Additional considerations*

Between 1990 and 1995 international migration had a major impact on population growth in the Russian Federation. An estimated 1.8 million persons migrated into Russia in this period, an average of 360,000 per year. While this volume of migration is comparable to the average levels required under scenarios I and III, it is much lower than the 871,000 persons that would be needed annually between 2010 and 2050 under scenario IV. It is also important to note that a large proportion of recent immigration into the Russian Federation has been the result of the resettling of ethnic Russians who came from the other republics of the former Soviet Union. Figure 19 shows, for scenarios I, II, III and IV, the population of the Russian Federation in 2050, indicating the share that is made up of post-1995 migrants and their descendants.

The number of immigrants required in scenario VI is immensely larger than past experience, more than 13 times the level recorded in 1990-1995.

In the absence of migration, the figures show that it would be necessary to raise the upper limit of the working-age in the Russian Federation to 66.8 years to obtain a potential support ratio of 3.0 in 2050. This would have to increase to about 73 years in order to obtain in 2050 the same potential support ratio observed in 1995, which was 5.6 persons of working-age per each older person past working-age. Increasing the activity rates of the population, if it were possible, would only be a partial palliative to the decline in the support ratio due to ageing. If the activity rates of all men and women aged 25 to 64 increased to 100 per cent by 2050, this would make up for only 30 per cent of the loss in the active support ratio resulting from the ageing of the population.

TABLE 23. POPULATION INDICATORS FOR THE RUSSIAN FEDERATION BY PERIOD FOR EACH SCENARIO

Scenario	*I*	*II*	*III*	*IV*	*V*	*VI **
Period	*Medium variant*	*Medium variant with zero migration*	*Constant total population*	*Constant age group 15-64*	*Ratio 15-64/65+ not less than 3.0*	*Constant ratio 15-64/65 years or older*
			A. Average annual number of migrants (thousands)			
1995-2000	394	0	611	0	0	*746*
2000-2025	163	0	445	638	0	*3 481*
2025-2050	55	0	551	792	1 064	*6 654*
2000-2050	109	0	498	715	532	*5 068*
1995-2050	135	0	508	650	484	*4 675*
			B. Total number of migrants (thousands)			
1995-2000	1 970	0	3 056	0	0	*3 731*
2000-2025	4 084	0	11 120	15 951	0	*87 021*
2025-2050	1 364	0	13 776	19 805	26 604	*166 358*
2000-2050	5 448	0	24 896	35 756	26 604	*253 379*
1995-2050	7 417	0	27 952	35 756	26 604	*257 110*
			C. Total population (thousands)			
1950	102 192	-	-	-	-	-
1975	134 233	-	-	-	-	-
1995	148 097	-	-	-	-	-
2000	146 934	144 960	148 097	144 960	144 960	*148 790*
2025	137 933	131 824	148 097	149 479	131 824	*231 075*
2050	121 256	114 248	148 097	158 049	143 093	*422 094*
			D. Age group 0-14 (thousands)			
1950	29 542	-	-	-	-	-
1975	31 280	-	-	-	-	-
1995	31 232	-	-	-	-	-
2000	26 679	26 244	27 040	26 244	26 244	*27 216*
2025	20 923	19 905	23 285	24 131	19 905	*43 641*
2050	17 372	16 298	22 719	25 011	23 613	*80 051*
			E. Age group 15-64 (thousands)			
1950	66 328	-	-	-	-	-
1975	91 069	-	-	-	-	-
1995	99 200	-	-	-	-	-
2000	101 862	100 467	102 703	100 467	100 467	*103 197*
2025	92 021	87 764	99 805	100 467	87 764	*159 103*
2050	73 569	69 199	92 540	100 467	89 610	*290 343*
			F. Age group 65+ (thousands)			
1950	6 322	-	-	-	-	-
1975	11 883	-	-	-	-	-
1995	17 664	-	-	-	-	-
2000	18 393	18 249	18 353	18 249	18 249	*18 376*
2025	24 989	24 156	25 006	24 881	24 156	*28 331*
2050	30 315	28 750	32 837	32 571	29 870	*51 701*
			G. Potential support ratio 15-64/65+			
1950	10.49	-	-	-	-	-
1975	7.66	-	-	-	-	-
1995	5.62	-	-	-	-	-
2000	5.54	5.51	5.60	5.51	5.51	*5.62*
2025	3.68	3.63	3.99	4.04	3.63	*5.62*
2050	2.43	2.41	2.82	3.08	3.00	*5.62*

** Scenario VI is considered to be demographically unrealistic.*

Figure 18. Age-sex structures by scenario for 2000, 2025 and 2050
(*Population in millions*)

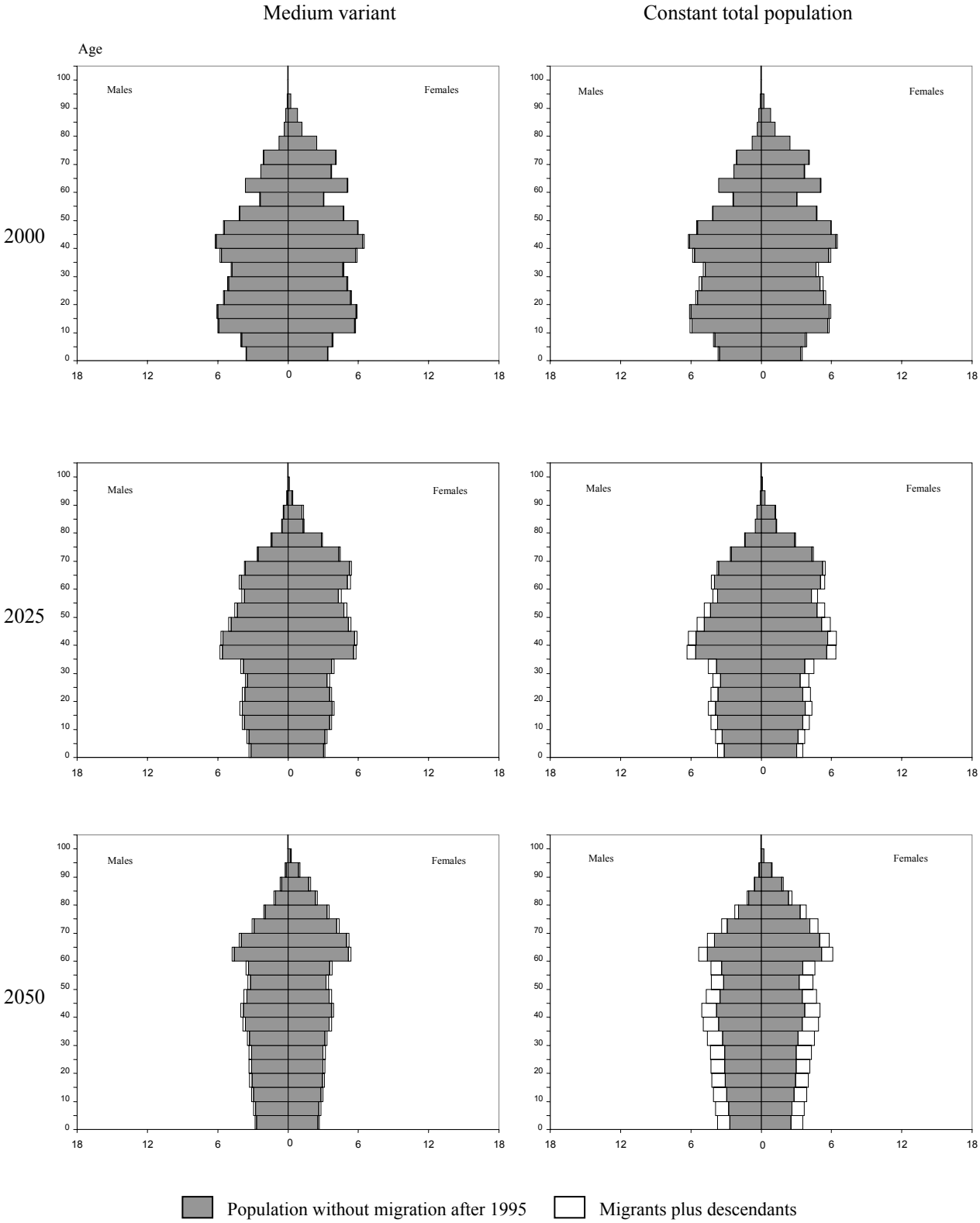


Figure 18 (continued)

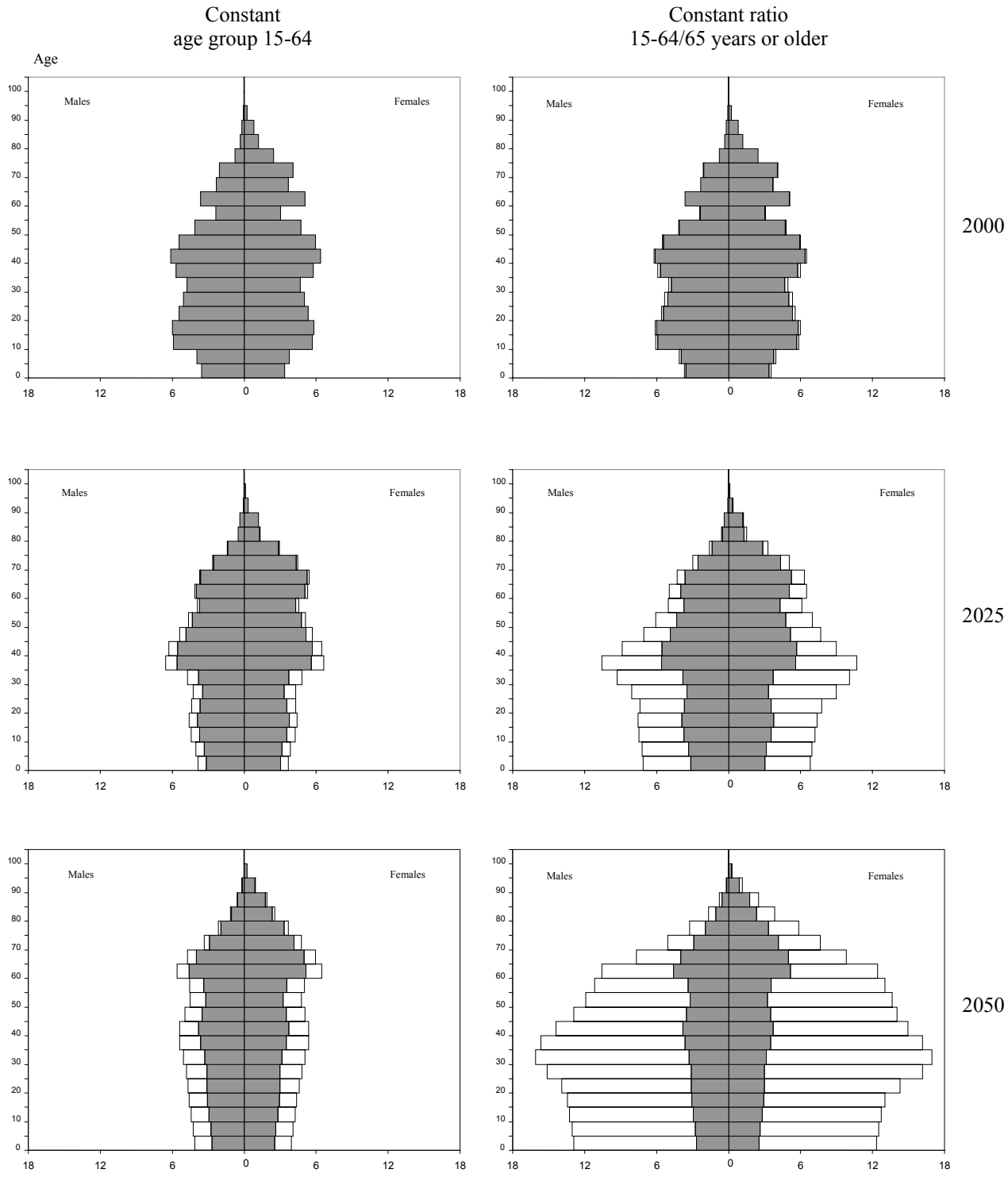
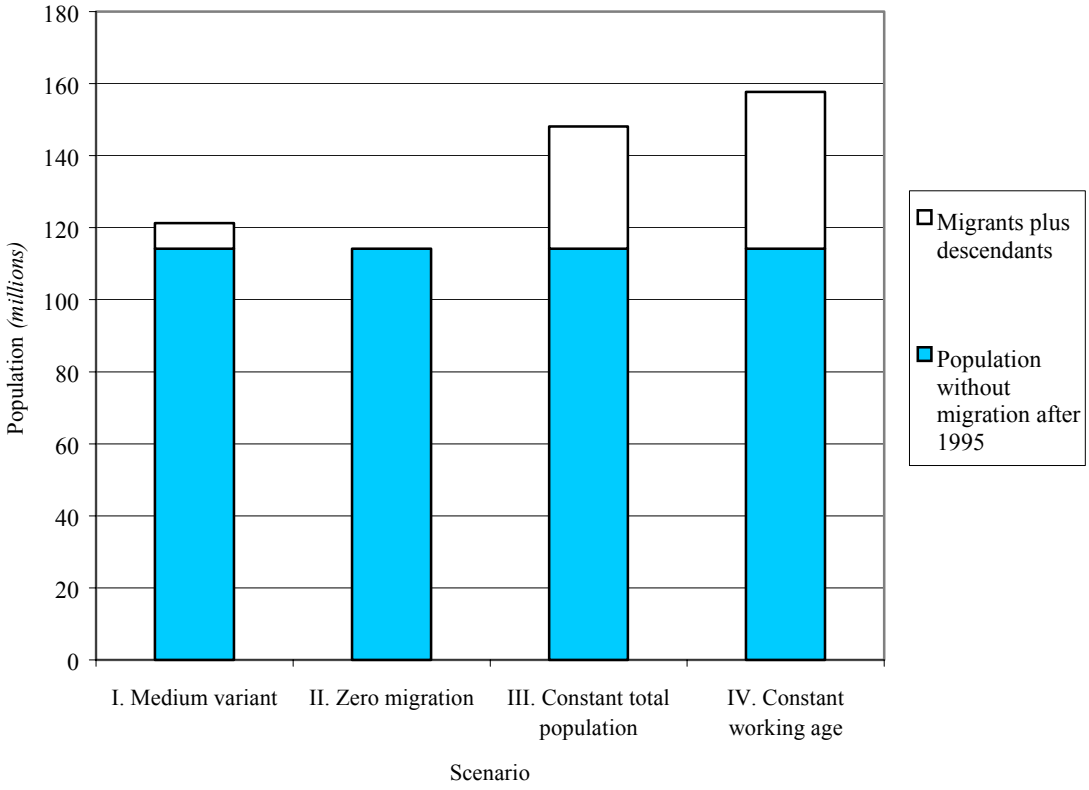


Figure 19. Population of the Russian Federation in 2050, indicating those who are post-1995 migrants and their descendants, by scenario



7. *United Kingdom of Great Britain and Northern Ireland*

(a) *Past trends*

Whereas the total fertility rate increased steadily from the 1950s level of 2.18 children per woman to 2.81 in 1960-1965, this trend reversed itself in the decades afterwards, and fertility fell continuously to 1.78 in 1990-1995. At the same time, life expectancy increased during the entire period from 1950-1995, from 69.2 to 76.2 years for both sexes. Hence, the proportion of the population aged 65 years or older increased over the same period of time from 10.7 per cent to 15.9 per cent.

At the beginning of the twentieth century, at a time when both fertility and mortality were higher, the potential support ratio was 13.3 persons aged 15-64 for each person aged 65 or older. The ratio declined to 6.2 in 1950 and declined further to 4.1 in 1995.

(b) *Scenario I*

Scenario I, which is the medium variant of the 1998 United Nations projections, assumes a total of 1.2 million net migrants between 1995 and 2050. From 1995 to 2025, 40,000 persons would enter Britain annually and none after 2025. The overall population of the United Kingdom would increase from 58.3 million in 1995 to 59.9 million in 2025 and thereafter decline to 56.6 million in 2050 (the results of the 1998 United Nations projections are shown in the annex tables). The population of working-age, aged 15-64 years, would increase from 37.8 million in 1995 to 39.2 million in 2010; afterwards there would be a continuous decline to 33.4 million in 2050. By that date 1.9 per cent of the total population would be post-1995 migrants or their descendants. The population aged 65 or over, on the other hand, would increase from 9.2 million (15.9 per cent) in 1995 to 14.1 million in 2050 (24.9 per cent) in 2050. As a result, the potential support ratio would drop from 4.09 in 1995 to 2.37 in 2050.

(c) *Scenario II*

Scenario II, which is the medium variant with zero migration, is based on the fertility and mortality assumptions of the medium variant of the 1998 United Nations projections, but without any migration to the United Kingdom after 1995. The overall population would decrease to 55.6 million in 2050, one million less than in scenario I; the population aged 15-64 years would decrease to 32.7 million, 700,000 less than in scenario I. The elderly population (aged 65 or older) would increase to 13.9 million in 2050, and the potential support ratio would be at 2.36. In general, only slight differences exist between scenarios I and II regarding the population trends of the country.

(d) *Scenario III*

Scenario III keeps the population in the United Kingdom constant at its maximum of 58.8 million people in 2020. In order to do so, the United Kingdom would have to receive 2.6 million migrants between 2020 and 2050. In 2050, 5.5 per cent of the total population would be post-1995 migrants or their descendants. This influx would result in a population of labour-force age of 35 million in 2050, and the population aged 65 or older would reach 14 million in 2050, 24 per cent of the total population. The potential support ratio would be 2.5.

(e) *Scenario IV*

Scenario IV keeps the age group between 15-64 years constant at its maximum of 38.9 million from 2010 on. For this to happen, a total of 6.2 million immigrants would be needed between 2010 and 2050,

which would increase the overall population to 64.3 million in 2050. By that date 13.6 per cent of the total population would be post-1995 migrants or their descendants. In 2050, the proportion of the elderly would be 22.9 per cent and the potential support ratio 2.6.

(f) *Scenario V*

Scenario V does not allow the potential support ratio to decrease below the value of 3.0. In order to achieve this, no immigrants would be needed until 2020, and 13.7 million immigrants would be needed between 2020 and 2040, an average of 0.7 million per year during that period. By 2050, out of a total population of 74.4 million, 18.8 million, or 25 percent, would be post-1995 immigrants or their descendants.

(g) *Scenario VI*

Scenario VI keeps the potential support ratio at its 1995 level of 4.09. Keeping this ratio would require 59.8 million migrants between 1995 and 2050, slightly more than one million migrants a year on average. The overall population would reach 136 million in 2050, of which 80 million (59 per cent) would be post-1995 migrants or their descendants.

(h) *Additional considerations*

Net migration in the United Kingdom amounted to 660,000 persons between 1990 and 1998, an average of 73,000 persons per year. In 1990, the proportion of the total population that was foreign-born was 6.5 per cent. This is comparable to the numbers needed to keep the total population constant, 88,000 migrants per year, and to the proportion of the total population in 2050 who would be post-1995 migrants or their descendants, 5.5 per cent. However, the number of migrants needed to keep the population of working-age constant is about twice the level of the past decade. Figure 21 shows, for scenarios I, II, III and IV, the population of the United Kingdom in 2050, indicating the share that is made up of post-1995 migrants and their descendants. Scenario VI, keeping the potential support ratio constant, would demand more than one million immigrants annually. This would greatly exceed the immigration rates that the country experienced in the past.

In the absence of migration, the figures show that it would be necessary to raise the upper limit of the working-age to 68.2 years to obtain a potential support ratio of 3.0 in 2050, and to about 72 years in order to obtain in 2050 the same potential support ratio observed in 1995 in the United Kingdom, which was 4.1 persons of working age per each older person past working age. Increasing the activity rates of the population, if it were possible, would only be a partial palliative to the decline in the support ratio due to ageing. If the activity rates of all men and women aged 25 to 64 increased to 100 per cent by 2050, this would make up for only 35 per cent of the loss in the active support ratio resulting from the ageing of the population.

TABLE 24. POPULATION INDICATORS FOR UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND BY PERIOD FOR EACH SCENARIO

Scenario	*I*	*II*	*III*	*IV*	*V*	*VI **
Period	*Medium variant*	*Medium variant with zero migration*	*Constant total population*	*Constant age group 15-64*	*Ratio 15-64/65+ not less than 3.0*	*Constant ratio 15-64/65 years or older*
			A. Average annual number of migrants (thousands)			
1995-2000	40	0	0	0	0	*11*
2000-2025	40	0	2	121	53	*947*
2025-2050	0	0	103	129	494	*1 441*
2000-2050	20	0	53	125	273	*1 194*
1995-2050	22	0	48	114	249	*1 087*
			B. Total number of migrants (thousands)			
1995-2000	200	0	0	0	0	*55*
2000-2025	1 000	0	61	3 025	1 315	*23 687*
2025-2050	0	0	2 572	3 222	12 358	*36 035*
2000-2050	1 000	0	2 634	6 247	13 674	*59 722*
1995-2050	1 200	0	2 634	6 247	13 674	*59 775*
			C. Total population (thousands)			
1950	50 616	-	-	-	-	-
1975	56 226	-	-	-	-	-
1995	58 308	-	-	-	-	-
2000	58 830	58 600	58 600	58 600	58 600	*58 655*
2025	59 961	58 768	58 833	62 248	60 160	*86 856*
2050	56 667	55 594	58 833	64 354	74 398	*136 138*
			D. Age group 0-14 (thousands)			
1950	11 306	-	-	-	-	-
1975	13 121	-	-	-	-	-
1995	11 241	-	-	-	-	-
2000	11 069	11 033	11 033	11 033	11 033	*11 048*
2025	10 071	9 872	9 890	10 796	10 245	*17 174*
2050	9 153	8 968	9 775	10 759	13 010	*26 299*
			E. Age group 15-64 (thousands)			
1950	33 881	-	-	-	-	-
1975	35 261	-	-	-	-	-
1995	37 811	-	-	-	-	-
2000	38 328	38 207	38 207	38 207	38 207	*38 246*
2025	37 166	36 465	36 510	38 873	37 437	*55 979*
2050	33 406	32 745	35 009	38 873	46 266	*88 239*
			F. Age group 65+ (thousands)			
1950	5 429	-	-	-	-	-
1975	7 844	-	-	-	-	-
1995	9 256	-	-	-	-	-
2000	9 433	9 360	9 360	9 360	9 360	*9 362*
2025	12 724	12 431	12 433	12 578	12 479	*13 703*
2050	14 107	13 881	14 048	14 722	15 122	*21 600*
			G. Potential support ratio 15-64/65+			
1950	6.24	-	-	-	-	-
1975	4.50	-	-	-	-	-
1995	4.09	-	-	-	-	-
2000	4.06	4.08	4.08	4.08	4.08	*4.09*
2025	2.92	2.93	2.94	3.09	3.00	*4.09*
2050	2.37	2.36	2.49	2.64	3.06	*4.09*

** Scenario VI is considered to be demographically unrealistic.*

Figure 20. Age-sex structures by scenario for 2000, 2025 and 2050
(*Population in millions*)

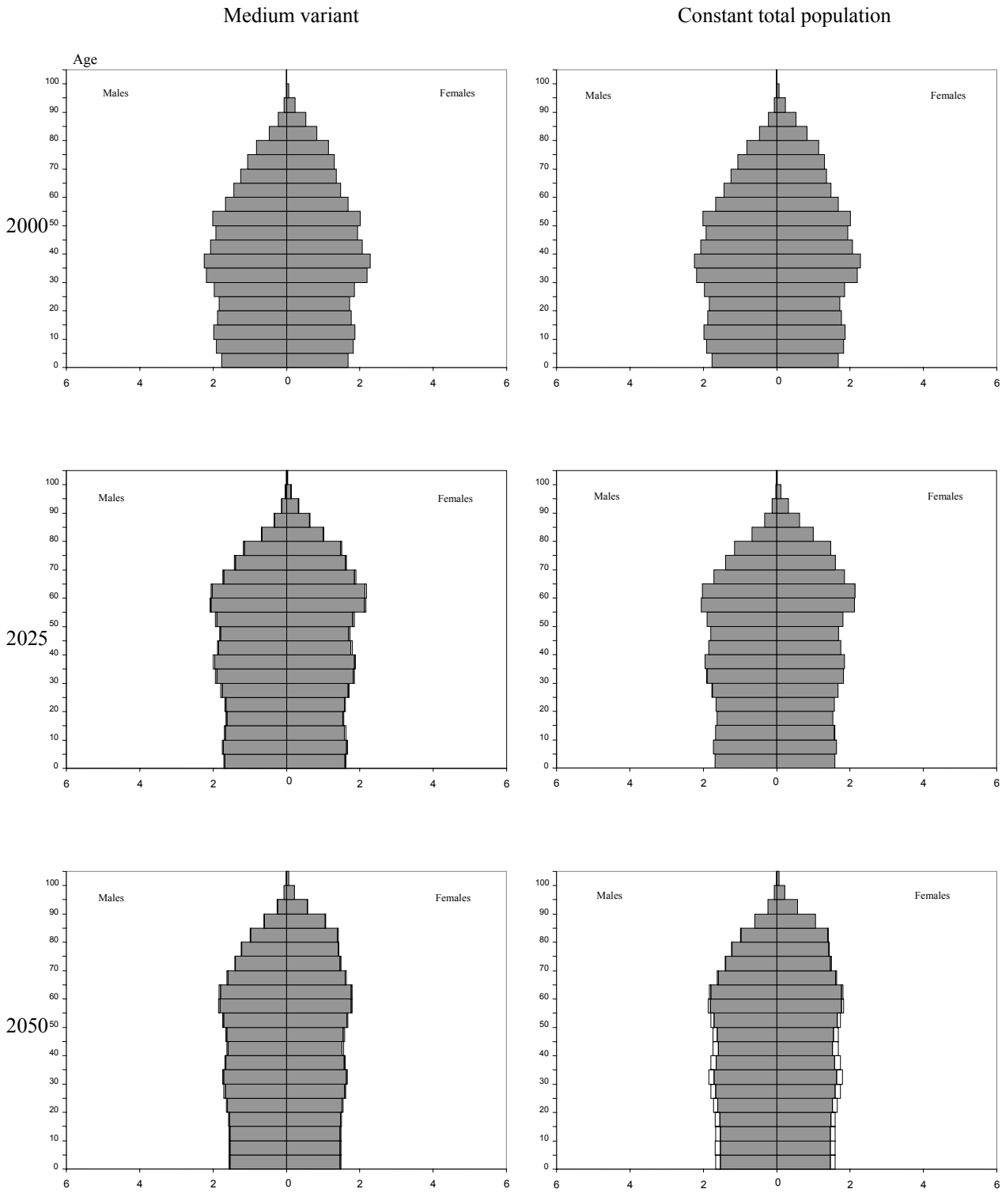


Figure 20 (continued)

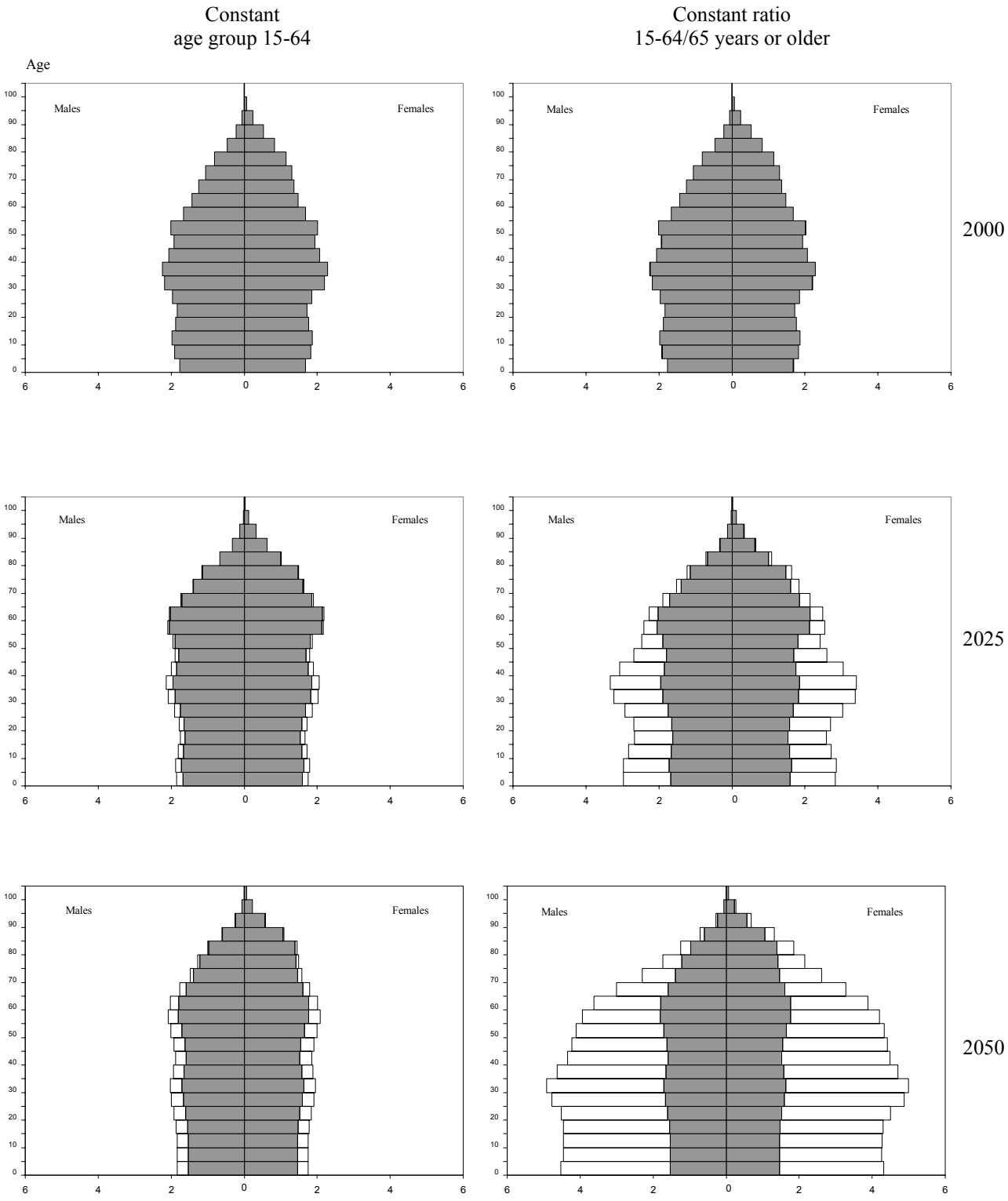
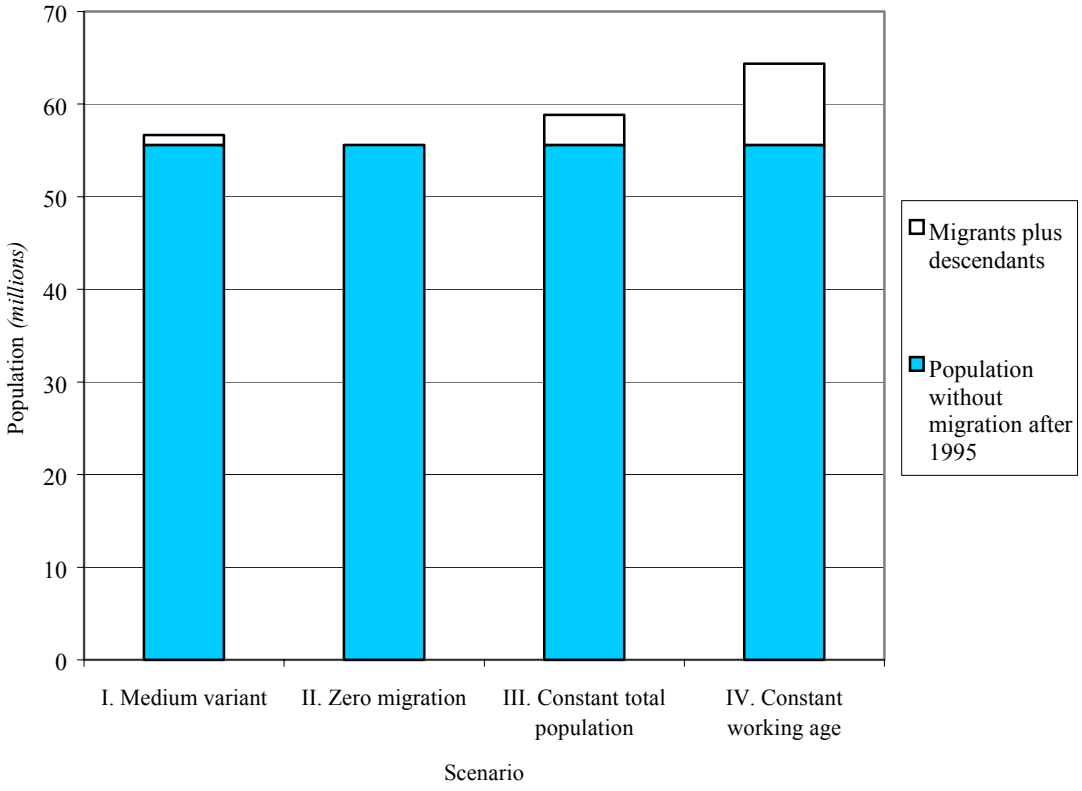


Figure 21. Population of the United Kingdom in 2050, indicating those who are post-1995 migrants and their descendants, by scenario



8. *United States of America*

(a) *Past trends*

The total fertility rate in the United States dropped from 3.45 births per woman in 1950-1955 to 2.02 in 1970-1975. Except for a temporary period during the late 1970s and early 1980s, when it hovered around 1.8, the total fertility rate has continued to be around two children per woman. Life expectancy at birth, meanwhile, has risen from 69.0 years in 1950-1955 to 75.7 years in 1990-1995. As a consequence of these changes, the proportion of the population aged 65 or older rose from 8.3 per cent in 1950 to 12.5 per cent in 1995, and the potential support ratio declined from 7.8 in 1950 to 5.2 in 1995. As a point of comparison, the potential support ratio was 15 in 1900, when 4 per cent of the population was aged 65 years or older.

(b) *Scenario I*

Scenario I, the medium variant of the United Nations *1998 Revision*, assumes an annual net intake of 760,000 migrants per year between 1995-2050, for a total of 41,800,000 net migrants during the period. Accordingly, the total population of the United States is projected to increase continuously from 267 million in 1995 to 349 million in 2050 (the results of the 1998 United Nations projections are shown in the annex tables). By 2050, out of this total population of 349 million, 59 million, or 16.8 per cent, would be post-1995 immigrants or their descendants. The population aged 15-64 would increase slowly from 174 million in 1995 to 214 million in 2050, although not in a monotonic fashion. The population aged 65 or older would rise rapidly, from 33 million in 1995 to nearly 76 million in 2050. As a result, the potential support ratio would decrease from 5.2 in 1995 to 2.8 in 2050.

(c) *Scenario II*

Scenario II, which is the medium variant with zero migration, uses the fertility and mortality assumptions of the medium variant of the *1998 Revision*, but without any migration to the United States after 1995. The results in this scenario are quite different from those of scenario I. The total population would increase to 290 million in 2050, which is 50 million less than in scenario I. The population aged 15-64 would rise from 174 million in 1995 to 192 million in 2010 and 2015 and then decline, returning to 174 million in 2050. The population aged 65 or older would double, from 33 million in 1950 to 68 million in 2050. As a result, the potential support ratio would decline to 2.6 in 2050, which is slightly below that presented in scenario I.

(d) *Scenario III*

Scenario III keeps the size of the total United States population constant at its maximum of 298 million, which it would reach in 2030 (assuming no in-migration after 1995). In order to keep the total population constant at that level, it would be necessary to have 6.4 million migrants between 2030 and 2050, which is an average of 319,000 migrants per year. By 2050, out of a total population of 298 million, 7.3 million, or 2.5 per cent, would be post-1995 immigrants or their descendants.

(e) *Scenario IV*

Scenario IV keeps the size of the population aged 15 to 64 constant at its maximum of 192.5 million, which it would reach in 2015 (assuming no in-migration after 1995). In order to keep the working-age population constant at that level, 18.0 million migrants would be needed between 2015 and 2050, which is an average of 513 thousand migrants per year. By 2050, out of a total population of 316 million, 25.0 million, or 7.9 per cent, would be post-1995 immigrants or their descendants.

(f) *Scenario V*

Scenario V does not allow the potential support ratio to decrease below the value of 3.0. In order to achieve this, no immigrants would be needed until 2025, and 44.9 million immigrants would be needed between 2025 and 2035, an average of 4.5 million per year during that period. By 2050, out of a total population of 352 million, 61 million, or 17 per cent, would be post-1995 immigrants or their descendants.

(g) *Scenario VI*

Scenario VI keeps the potential support ratio at its 1995 value of 5.2 persons aged 15-64 for each person aged 65 or older. In order to keep the potential support ratio constant at that level, it would be necessary to have 593 million immigrants from 1995 to 2050, an average of 10.8 million per year. By 2050, out of a United States total population of 1.1 billion, 775 million, or 73 per cent, would be post-1995 immigrants or their descendants.

(h) *Additional considerations*

The official United States estimate of (documented) migrants into the United States from 1990 to 1996 is about 1.1 million per year. Thus, the past regular inflow into the United States is well above the number of migrants needed to prevent a decline in the total population or in the working-age population. Also under both scenarios III and IV, the percentage of post-1995 immigrants and their descendants in the total population of 2050 (2.5 per cent for scenario III and 7.9 per cent for scenario IV) would be below the percentage of foreign-born that exists currently (9.6 per cent). Figure 23 shows, for scenarios I, II, III and IV, the population of the United States in 2050, indicating the share that consists of post-1995 migrants and their descendants.

In the absence of migration, the figures show that it would be necessary to raise the upper limit of the working-age to 66.9 years to obtain a potential support ratio of 3.0 in 2050, and to about 74 years in order to obtain in 2050 the same potential support ratio observed in 1995 in the United States, which was 5.2 persons of working age per each older person past working age. Increasing the activity rates of the population, if it were possible, would only be a partial palliative to the decline in the support ratio due to ageing. If the activity rates of all men and women aged 25 to 64 were to increase to 100 per cent by 2050, this would make up for only 21 per cent of the loss in the active support ratio resulting from the ageing of the population.

TABLE 25. POPULATION INDICATORS FOR THE UNITED STATES OF AMERICA BY PERIOD FOR EACH SCENARIO

Scenario	*I*	*II*	*III*	*IV*	*V*	*VI **
Period	*Medium variant*	*Medium variant with zero migration*	*Constant total population*	*Constant age group 15-64*	*Ratio 15-64/6+ not less than 3.0*	*Constant ratio 15-64/65 years or older*
			A. Average annual number of migrants (thousands)			
1995-2000	760	0	0	0	0	*37*
2000-2025	760	0	0	431	0	*9 394*
2025-2050	760	0	255	288	1 796	*14 309*
2000-2050	760	0	128	359	898	*11 851*
1995-2050	760	0	116	327	816	*10 777*
			B. Total number of migrants (thousands)			
1995-2000	3 800	0	0	0	0	*185*
2000-2025	19 000	0	0	10 771	0	*234 843*
2025-2050	19 000	0	6 384	7 196	44 892	*357 729*
2000-2050	38 000	0	6 384	17 967	44 892	*592 572*
1995-2050	41 800	0	6 384	17 967	44 892	*592 757*
			C. Total population (thousands)			
1950	157 813	-	-	-	-	-
1975	220 165	-	-	-	-	-
1995	267 020	-	-	-	-	-
2000	278 357	274 335	274 335	274 335	274 335	*274 531*
2025	325 573	296 616	296 616	308 408	296 616	*566 888*
2050	349 318	290 643	297 970	315 644	351 788	*1 065 174*
			D. Age group 0-14 (thousands)			
1950	42 596	-	-	-	-	-
1975	55 424	-	-	-	-	-
1995	59 161	-	-	-	-	-
2000	59 771	58 756	58 756	58 756	58 756	*58 808*
2025	59 241	52 662	52 662	55 789	52 662	*122 849*
2050	59 724	48 075	49 984	52 984	60 967	*216 127*
			E. Age group 15-64 (thousands)			
1950	102 175	-	-	-	-	-
1975	141 706	-	-	-	-	-
1995	174 382	-	-	-	-	-
2000	183 752	180 843	180 843	180 843	180 843	*180 979*
2025	204 985	184 267	184 267	192 476	184 267	*372 525*
2050	213 695	174 607	179 699	192 476	218 824	*712 305*
			F. Age group 65+ (thousands)			
1950	13 043	-	-	-	-	-
1975	23 035	-	-	-	-	-
1995	33 477	-	-	-	-	-
2000	34 833	34 736	34 736	34 736	34 736	*34 743*
2025	61 347	59 687	59 687	60 143	59 687	*71 515*
2050	75 899	67 961	68 287	70 184	71 997	*136 743*
			G. Potential support ratio 15-64/65+			
1950	7.83	-	-	-	-	-
1975	6.15	-	-	-	-	-
1995	5.21	-	-	-	-	-
2000	5.28	5.21	5.21	5.21	5.21	*5.21*
2025	3.34	3.09	3.09	3.20	3.09	*5.21*
2050	2.82	2.57	2.63	2.74	3.04	*5.21*

** Scenario VI is considered to be demographically unrealistic.*

Figure 22. Age-sex structures by scenario for 2000, 2025 and 2050
(*Population in millions*)

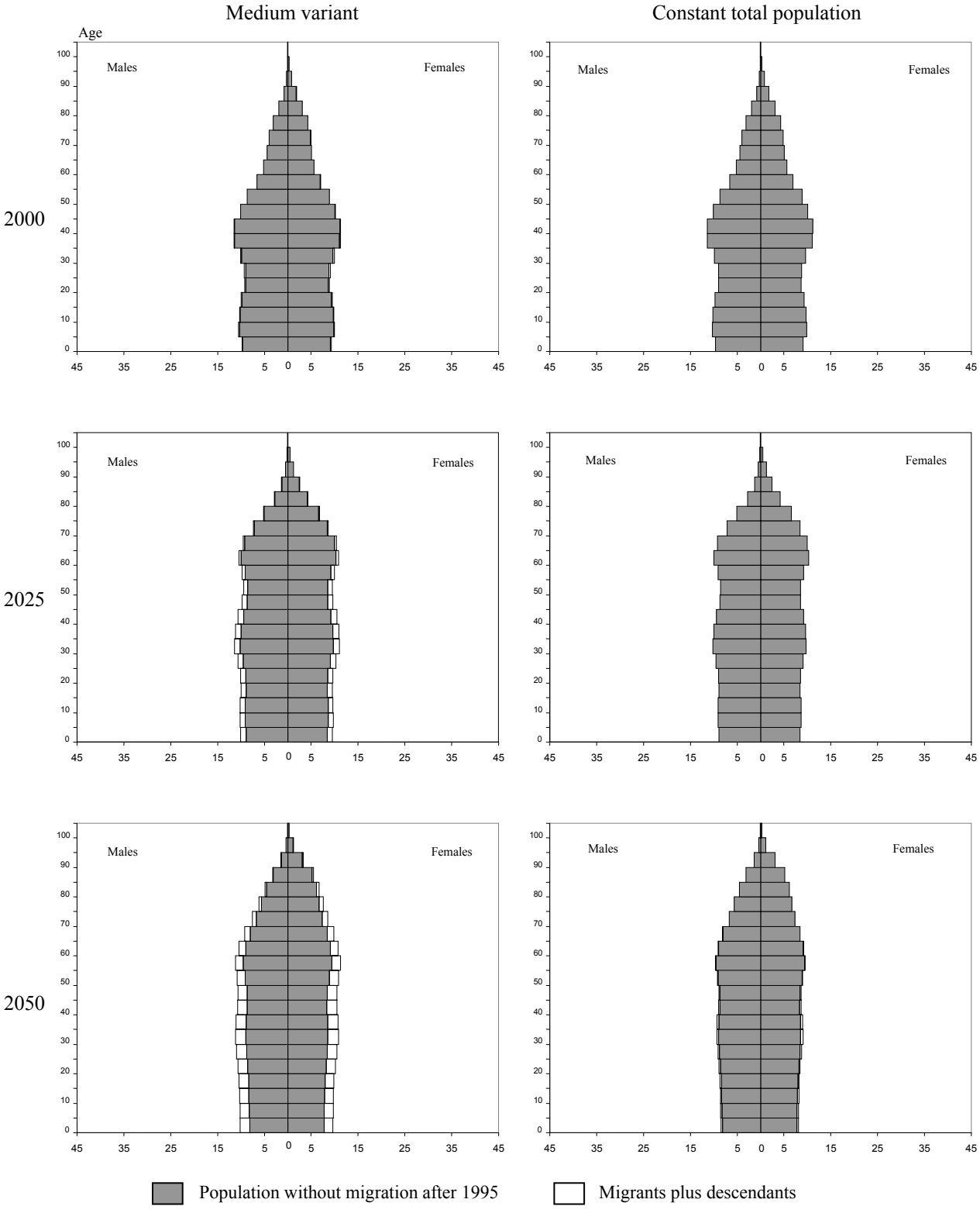


Figure 22 (continued)

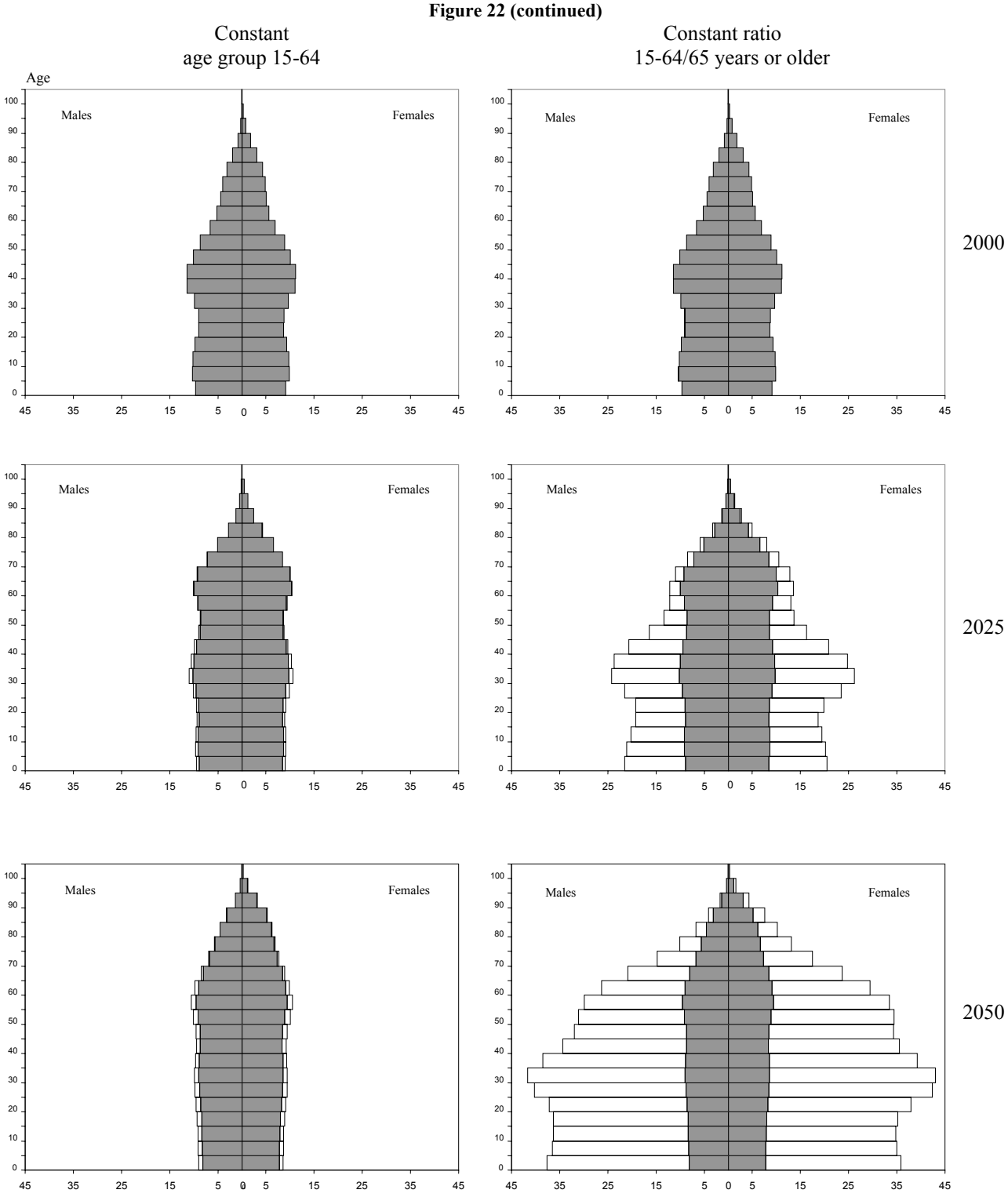
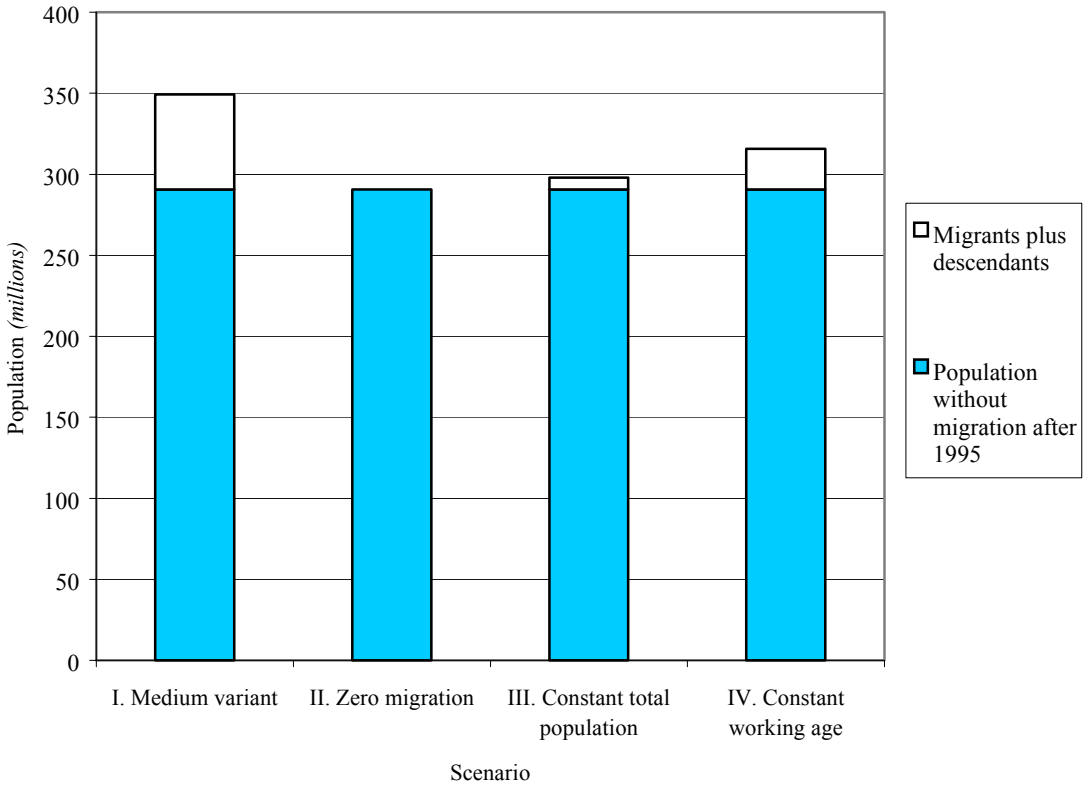


Figure 23. Population of the United States in 2050, indicating those who are post-1995 migrants and their descendants, by scenario



9. *Europe*

(a) *Past trends*

Europe today consists of the 47 countries and areas that are listed on page viii. The combined population of these 47 countries was 728 million in 1995. The total fertility rate in Europe fluctuated at levels slightly below 2.6 births per woman in the 1950s and early 1960s, but subsequently took a steady downward course that reduced it to 1.57 births per woman by 1990-1995. Life expectancy at birth progressed at an uneven pace until recently, rising from 66.2 years in 1950-1955 to 73.0 years in 1985-1995. Subsequently, the expectation of life declined to 72.6 years in 1990-1995, a trend reflecting the sharp deterioration of mortality conditions observed in Eastern Europe, particularly in the Russian Federation and Ukraine. The proportion of the population aged 65 or older rose from 8.2 per cent in 1950 to 13.9 per cent in 1995. The potential support ratio declined from 8.0 in 1950 to 4.8 in 1995.

(b) *Scenario I*

Scenario I, the medium variant of the United Nations population projections in the *1998 Revision*, assumes an average net intake of 428,000 migrants per year between 1995-2050, for a net total of 23,530,000 migrants during the period. After a slight increase between 1995 and 2000, when the total population of Europe would reach its top level at 729 million, continuous decline is projected to set in immediately after 2000. By 2050, Europe would have lost some 100 million inhabitants and would therefore have a population of only about 628 million, or 14 per cent less than in 1995. (The results of the *1998 Revision* are shown in the annex tables.) By 2050, out of this total population of 628 million, 27 million, or 4.3 per cent, would be post-1995 immigrants or their descendants. Up to 2010, the population aged 15-64 would register diminishing increases; having topped at some 497 million in 2010, it would thereafter decline rapidly. By 2050, the working-age population of Europe would be down to 364 million, a 25 per cent reduction in relation to the 1995 level. On the other hand, the population aged 65 or older would rise steadily, from 101 million in 1995 to nearly 173 million in 2050. As a result, the potential support ratio would be severely reduced, from 4.8 in 1995 to 2.1 in 2050.

(c) *Scenario II*

Scenario II, which is the medium variant with zero migration, uses the fertility and mortality assumptions of the medium variant of the *1998 Revision*, but without any migration to Europe after 1995. The results in this scenario show that in the absence of migration, the total population would start decreasing immediately after 1995, and by 2050 it would be down to 600 million, approximately 27 million less than in scenario I and some 127 million (or 18 per cent) down from the 1995 level. The population aged 15-64 would initially continue to rise, going from 487 million in 1995 to 493 million in 2005; thereafter it would drop steadily to reach 345 million in 2050, a decline of almost 30 per cent in relation to 1995. The population aged 65 or older would increase from 101 million in 1995 to 169 million in 2050. While the absence of migration means considerably smaller population numbers, it would impact less on the population aging process: the potential support ratio would decline to 2.0 in 2050, which is only marginally lower than the figure (2.1) in scenario I.

(d) *Scenario III*

Scenario III keeps the size of the total population of Europe constant at its maximum of 728 million and calculates the number of migrants that would be required in order to prevent the decline of the population in the face of an increasing excess of deaths over births. The calculations show that a net total of 100 million migrants would be required during the period 1995-2050 just to maintain the total

population of Europe at its 1995 level. This corresponds to an average of approximately 1.8 million net migrants per year. By 2050, out of a total population of 728 million, 127 million, or close to 18 per cent, would be post-1995 immigrants or their descendants.

(e) *Scenario IV*

Scenario IV keeps the size of the population aged 15 to 64 constant at 492.6 million, which is the maximum level that it would reach (in 2005) in absence of migration after 1995. The calculations show that the number of migrants that would be required to prevent the decline of the working age population after that point would total 161 million over the period 2005-2050, or a net average of approximately 3.6 million migrants per year during those 45 years. This would cause the total population to grow from 728 million in 1995 to 809 million in 2050; out of these 809 million people, some 209 million, or 26 per cent, would be post-2005 immigrants or their descendants.

(f) *Scenario V*

Scenario V does not allow the potential support ratio to decrease below the value of 3.0. For this to happen, no immigrants would be needed until 2025, and 235 million immigrants would be needed between 2025 and 2050, an average of 9.4 million per year during that period. By 2050, out of a total population of 895 million, 294 million, or 33 per cent, would be post-1995 immigrants or their descendants.

(g) *Scenario VI*

Scenario VI keeps the potential support ratio at its 1995 value of 4.8 persons aged 15-64 years for each person aged 65 years or older. In order to keep the potential support ratio constant at that level, it would be necessary to have almost 1.4 billion immigrants from 1995 to 2050, an average of 25.2 million a year. By 2050, the population of Europe would have grown to 2.3 billion out of which 1.7 billion, or almost three quarters, would be post-1995 immigrants or their descendants.

(h) *Additional considerations*

The United Nations estimate of the average net total number of migrants in Europe around 1997 is 950,000 per year. This level would be about half the long-term average net number of migrants required to prevent the total population from declining; one third of the number required to prevent the working-age population from declining; and about 4 per cent of the number required to maintain the potential support ratio at its 1995 level. Figure 25 shows, for scenarios I, II, III and IV, the population of Europe in 2050, indicating the share that is made up of post-1995 migrants and their descendants.

In the absence of migration, the calculations in this report indicate that the upper limit of the working age would need to be raised to 69.8 years in order to obtain in 2050 a potential support ratio of 3.0, and to about 75 years in order to obtain in 2050 the same potential support ratio observed in Europe in 1995, which was 4.8 persons of working age per older person.

TABLE 26. POPULATION INDICATORS FOR EUROPE BY PERIOD FOR EACH SCENARIO

Scenario	*I*	*II*	*III*	*IV*	*V*	*VI **
Period	*Medium variant*	*Medium variant with zero migration*	*Constant total population*	*Constant age group 15-64*	*Ratio 15-64/65 not less than 3.0*	*Constant ratio 15-64/65 years or older*
			A. Average annual number of migrants (thousands)			
1995-2000	950	0	854	0	0	*5 844*
2000-2025	486	0	1 323	2 696	0	*17 246*
2025-2050	265	0	2 511	3 758	9 402	*37 031*
2000-2050	376	0	1 917	3 227	4 701	*27 139*
1995-2050	428	0	1 821	2 934	4 274	*25 203*
			B. Total number of migrants (thousands)			
1995-2000	4 750	0	4 270	0	0	*29 220*
2000-2025	12 162	0	33 081	67 393	0	*431 153*
2025-2050	6 617	0	62 787	93 953	235 044	*925 779*
2000-2050	18 779	0	95 869	161 346	235 044	*1 356 932*
1995-2050	23 530	0	100 137	161 346	235 044	*1 386 151*
			C. Total population (thousands)			
1950	547 318	-	-	-	-	-
1975	676 390	-	-	-	-	-
1995	727 912	-	-	-	-	-
2000	728 887	723 482	727 912	723 482	723 434	*753 810*
2025	702 335	684 055	727 912	759 766	684 189	*1 212 912*
2050	627 691	600 464	727 912	809 399	894 776	*2 346 459*
			D. Age group 0-14 (thousands)			
1950	143 174	-	-	-	-	-
1975	160 557	-	-	-	-	-
1995	139 464	-	-	-	-	-
2000	127 346	125 509	126 643	125 509	125 500	*133 272*
2025	103 212	100 408	110 158	119 218	100 400	*223 700*
2050	90 430	86 378	112 731	129 140	152 282	*456 670*
			E. Age group 15-64 (thousands)			
1950	359 162	-	-	-	-	-
1975	438 455	-	-	-	-	-
1995	487 110	-	-	-	-	-
2000	494 102	492 142	495 287	492 142	492 222	*513 673*
2025	451 599	438 874	470 673	492 555	438 988	*818 857*
2050	364 277	345 100	432 959	492 555	556 871	*1 564 343*
			F. Age group 65+ (thousands)			
1950	44 981	-	-	-	-	-
1975	77 377	-	-	-	-	-
1995	101 338	-	-	-	-	-
2000	107 439	105 831	105 982	105 831	105 712	*106 865*
2025	147 524	144 774	147 081	147 993	144 801	*170 355*
2050	172 985	168 986	182 222	187 704	185 624	*325 446*
			G. Potential support ratio 15-64/65+			
1950	7.98	-	-	-	-	-
1975	5.67	-	-	-	-	-
1995	4.80	-	-	-	-	-
2000	4.60	4.65	4.67	4.65	4.66	*4.81*
2025	3.06	3.03	3.20	3.33	3.03	*4.81*
2050	2.11	2.04	2.38	2.62	3.00	*4.81*

** Scenario VI is considered to be demographically unrealistic.*

Figure 24. Age-sex structures by scenario for 2000, 2025 and 2050
(*Population in millions*)

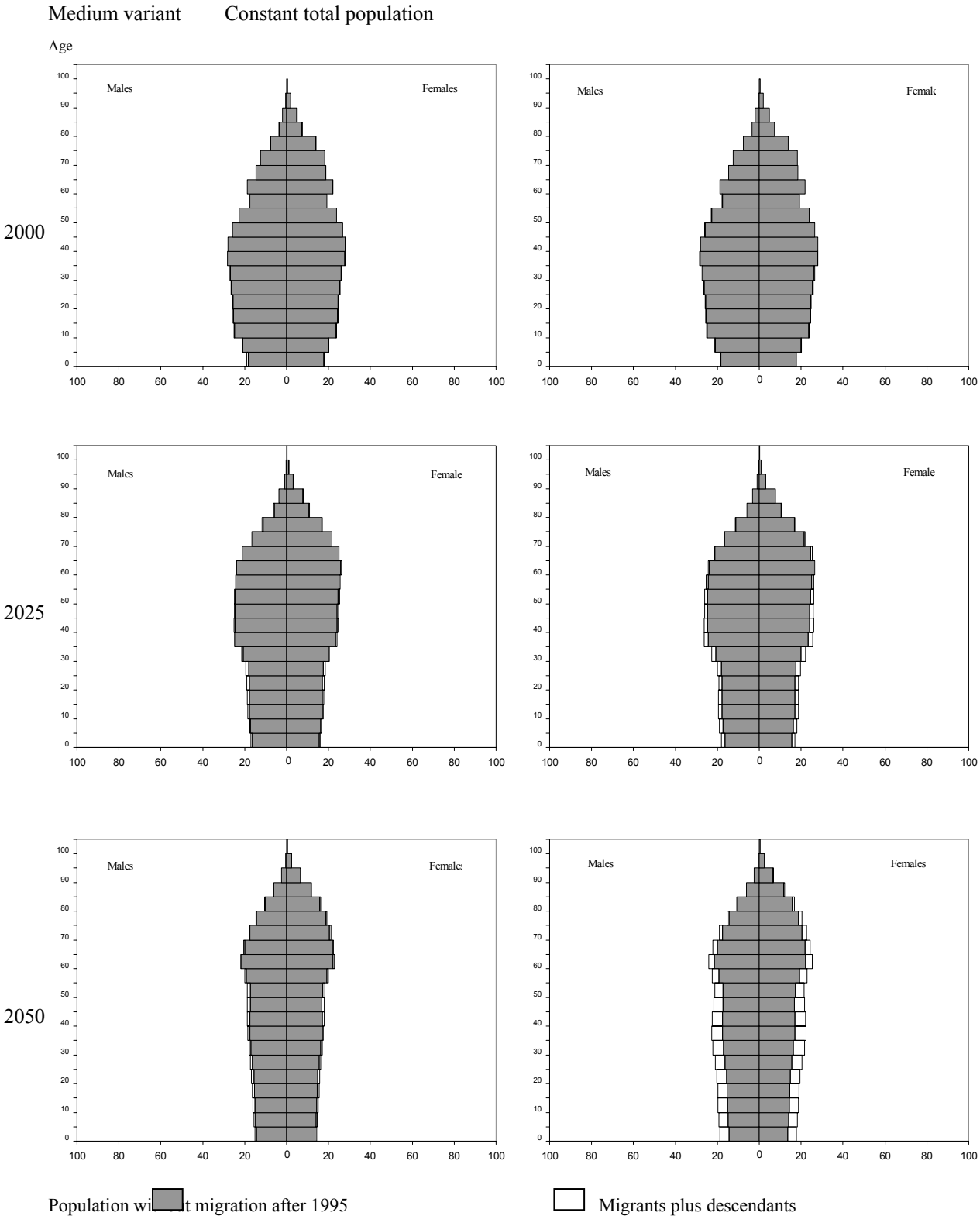


Figure 24 (continued)

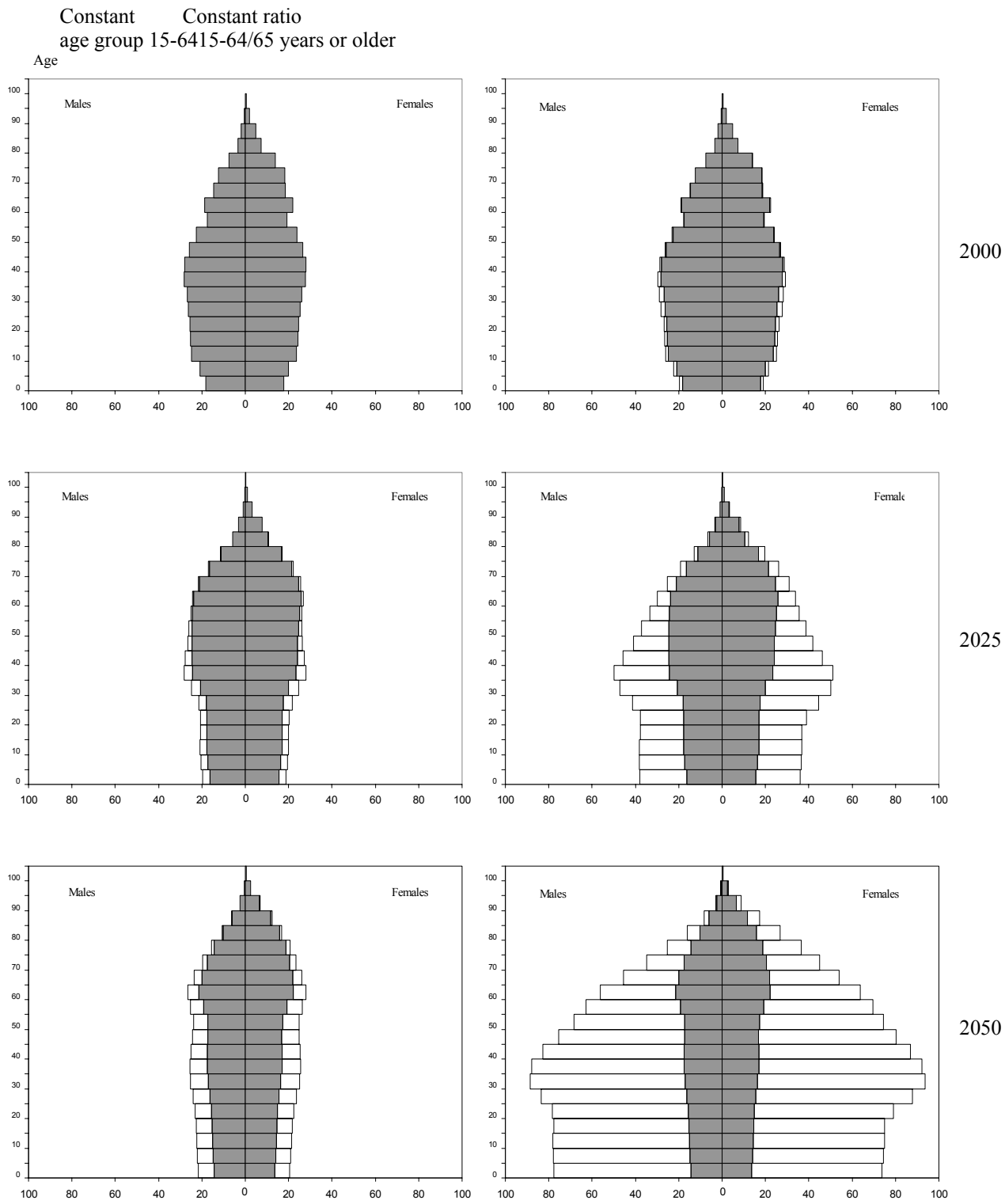
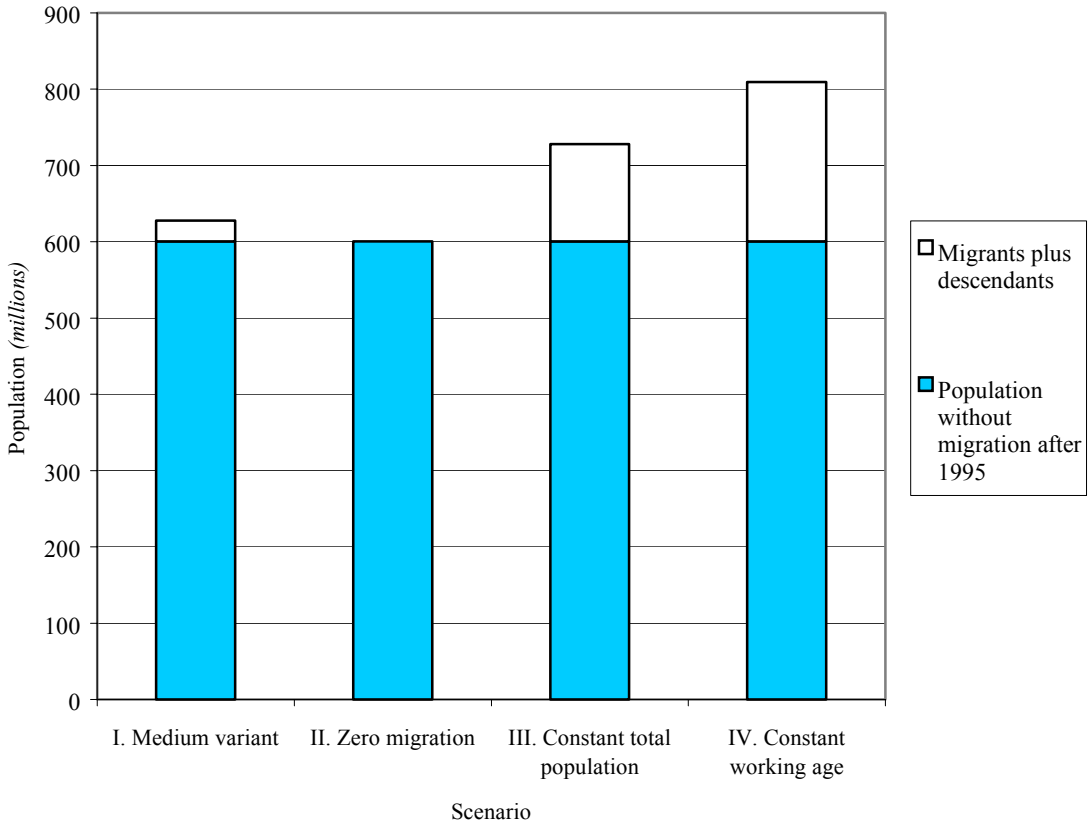


Figure 25. Population of Europe in 2050, indicating those who are post-1995 migrants and their descendants, by scenario



10. *European Union*

(a) *Past trends*

The total fertility rate in the 15 countries that presently constitute the European Union was on a rising curve until 1960-65, when it attained 2.69 births per woman. Since 1995, fertility has constantly decreased, falling below the replacement level of two children per woman around 1975. By 1990-95, fertility stood at 1.5 births per woman. Life expectancy at birth, meanwhile, rose from 67.0 years in 1950-1955 to 76.5 years in 1990-1995. As a consequence of these trends, the proportion of the population aged 65 or older rose from 9.5 per cent in 1950 to 15.5 per cent in 1995, and the potential support ratio (the number of persons aged 15-64 for each person aged 65 or older) fell in the same period, from 7.0 to 4.3.

(b) *Scenario I*

Scenario I, the medium variant of the United Nations population projections in the *1998 Revision*, assumes an average net intake very close to 300,000 migrants per year between 1995-2050, for a total of almost 16.4 migrants during the period. The medium variant projects that the total population of the 15 countries would briefly continue to grow until around 2005, by which time it would attain 376.5 million; from that point, it would start to decline at increasing speed, so that by 2050 some 331.3 million people would remain a loss of 40.6 million persons in relation to 1995 and 45.2 million persons in relation to the projected peak level in 2005 (the results of the 1998 United Nations projections are shown in the annex tables). This loss would be equivalent to the combined present population of the seven smallest members of the European Union: Austria, Denmark, Finland, Ireland, Luxembourg, Portugal and Sweden (see table 27). By 2050, the population of the European Union, which in 1995 was some 100 million larger than that of the United States, would be smaller than that of the United States by about 20 million.

The population aged 15-64 would first register a slight increase from 249 million in 1995 to less than 252 million in 2005, but it would be followed by an accelerating decline that would bring it down to slightly under 188 million by 2050. The projected decline (61.5 million between 1995 and 2050) would thus reduce the working-age population by one quarter in relation to 1995 levels. On the other hand, the population aged 65 or older would register steady growth, rising from 58 million in 1995 to 96 million in 2050, an increase of approximately 65 per cent. As a result, the potential support ratio would decrease from 4.3 in 1995 to slightly less than 2.0 in 2050.

(c) *Scenario II*

Scenario II, which is the medium variant with zero migration, uses the fertility and mortality assumptions of the medium variant of the *1998 Revision*, but without any migration to the 15 countries of the European Union after 1995. In this scenario, the total population would start declining after 2000 rather than five years later, and by 2050 it would be down to approximately 311 million, which is 20 million less than in scenario I. The population aged 15-64 would immediately start declining, dropping from 249 million in 1995 to 174 million in 2050. Thus, without migration, the working age population would be cut by 30 per cent rather then by 25 per cent as in scenario I. The population aged 65 or older would increase from 58 million in 1995 to 92 million in 2050, entailing a decline of the potential support ratio to 1.9 in 2050, 0.1 less than that projected in scenario I.

TABLE 27. POPULATION OF THE MEMBER COUNTRIES OF THE EUROPEAN UNION, 1995 AND 2050, SCENARIO I

Member countries as of 2000	*Population (thousands)*		*Projected change 1995-2050*	
	1995	*2050 (Scenario I)*	*(Thousands)*	*(Percentage)*
Austria	8 001	7 094	- 907	- 11.3
Belgium	10 088	8 918	- 1 170	- 11.6
Denmark	5 225	4 793	- 567	- 10.9
Finland	5 108	4 898	- 210	- 4.1
France	58 020	59 883	1 863	+ 3.2
Germany	81 661	73 303	- 8 358	- 10.2
Greece	10 489	8 233	- 2 256	- 21.5
Ireland	3 609	4 710	1 101	+ 30.5
Italy	57 338	41 197	- 16 141	- 28.2
Luxembourg	407	430	23	+ 5.7
Netherlands	15 459	14 156	- 1 303	- 8.4
Portugal	9 856	8 137	- 1 719	- 17.4
Spain	39 568	30 226	9 342	- 23.6
Sweden	8 800	8 661	- 139	- 1.6
United Kingdom	58 308	56 667	- 1 641	- 2.8
European Union	371 937	331 307	- 40 630	- 10.9

(d) *Scenario III*

Scenario III keeps the size of the total population constant at its projected peak level of 372 million in 2000 (assuming no in-migration in the period 1995-2000). In order to keep the total population constant at that level, 47.4 million migrants would be necessary between 2000 and 2050, an average of 949,000 migrants per year. By 2050, out of a total population of 372 million, 61.6 million, or 16.5 per cent, would be post-2000 immigrants or their descendants**.** The potential support ratio in 2050 would be 2.2, which is only 0.2 point higher than in scenario I.

(e) *Scenario IV*

Scenario IV keeps the size of the population aged 15-64 constant at its 1995 level of 249 million, which would be the maximum level that it would ever reach in the absence of post-1995 migration. In order to keep the working-age population constant at that level, it would in fact be necessary to have 79.6 million migrants between 1995 and 2050, an average of 1.4 million migrants per year. Owing to irregularities in the age structure of the population, the annual number of migrants required to keep the working-age population constant would first increase rapidly and then decline. It would peak in 2025-2030, with an annual number of net migrants in excess of 2.8 million. By 2050, out of a total population of 418.5 million, post-1995 immigrants and their descendants would be 107.7 million, or 25.7 per cent. The potential support ratio in 2050 according to this scenario would be significantly higher than in scenario I, (2.4 as opposed to 2.0), but the difference is modest compared to the magnitude of the drop from the level of 4.3 in 1995.

(f) *Scenario V*

Scenario V does not allow the potential support ratio to decrease below the value of 3.0. In order to achieve this, no immigrants would be needed until 2015, and 153.6 million immigrants would be needed between 2015 and 2040, an average of 6.1 million per year during that period. By 2050, out of a total population of 520 million, 209 million, or 40 per cent, would be post-1995 immigrants or their descendants.

(g) *Scenario VI*

Scenario VI keeps the potential support ratio at its 1995 value of 4.3 persons aged 15-64 for each person aged 65 or older. In order to keep the potential support ratio constant at that level, the European Union would need 701 million immigrants from 1995 to 2050, an average of 12.7 million per year. Also, as under scenario IV, the irregularities in the age structure of the population would cause fluctuations in the annual number of migrants required to keep the potential support ratio constant. The peak levels would be attained in 2030-2035, with 20.3 million net immigrants per year. By 2050, out of a total population of 1.2 billion, 918 million, or about 75 per cent, would be post-1995 immigrants or their descendants.

(h) *Additional considerations*

According to recent national estimates, the European Union had an average annual net migration of 857,000 persons from 1990 to 1998. Thus, the number of migrants needed to prevent a decline in the total population is roughly comparable to the level of migration in the 1990s. However, in order to prevent a decline in the working-age population, the annual number of migrants would need to nearly double in relation to recent experience. Figure 26 shows, for scenarios I, II, III and IV, the population of the European Union in 2050, indicating the share that is made up of post-1995 migrants and their descendants.

The annual number of migrants necessary to keep the potential support ratio constant at its 1995 level would be 15 times greater than the net migration level in the 1990s. Towards the end of the period, i.e. by 2040-2050, the net annual number of migrants required by the European Union would be equivalent to half the world's annual population growth.

Thus, if replacement migration were to be used as the mechanism for shoring up the potential support ratio in the European Union at its present level, by 2050 the total population of the European Union would have grown to more than three times its present level. In this process, the European Union's share of world population would have more than doubled, from 6.6 per cent in 1995 to 13.8 per cent 2050. In addition, three quarters of the total population in 2050 would consist of post-1995 migrants from outside the present boundaries of the Union and their descendants.

In the absence of migration, the calculations in this report indicate that the upper limit of the working age would need to be raised to 71.3 years to obtain a potential support ratio of 3.0 in 2050, and to about 76 years in order to obtain in 2050 the same potential support ratio observed in 1995 in the European Union, which was 4.3 persons of working age per older person.

TABLE 28. POPULATION INDICATORS FOR THE EUROPEAN UNION BY PERIOD FOR EACH SCENARIO

Scenario	*I*	*II*	*III*	*IV*	*V*	*VI **
Period	*Medium variant*	*Medium variant with zero migration*	*Constant total population*	*Constant age group 15-64*	*Ratio 15-64/65+ not less than 3.0*	*Constant ratio 15-64/65 years or older*
			A. Average annual number of migrants (thousands)			
1995-2000	574	0	0	46	0	*5 302*
2000-2025	330	0	612	1 380	1 793	*8 556*
2025-2050	210	0	1 287	1 795	4 352	*18 404*
2000-2050	270	0	949	1 588	3 073	*13 480*
1995-2050	297	0	863	1 447	2 794	*12 736*
			B. Total number of migrants (thousands)			
1995-2000	2 870	0	0	230	0	*26 510*
2000-2025	8 239	0	15 290	34 502	44 837	*213 911*
2025-2050	5 250	0	32 166	44 874	108 808	*460 088*
2000-2050	13 489	0	47 456	79 375	153 646	*673 999*
1995-2050	16 361	0	47 456	79 605	153 646	*700 506*
			C. Total population (thousands)			
1950	296 151	-	-	-	-	-
1975	349 313	-	-	-	-	-
1995	371 937	-	-	-	-	-
2000	375 276	372 440	372 440	372 680	372 440	*400 089*
2025	367 342	354 500	372 440	394 551	401 916	*641 056*
2050	331 307	310 839	372 440	418 509	519 965	*1 228 341*
			D. Age group 0-14 (thousands)			
1950	72 524	-	-	-	-	-
1975	82 958	-	-	-	-	-
1995	64 740	-	-	-	-	-
2000	62 380	61 879	61 879	61 941	61 879	*69 006*
2025	52 926	50 320	54 641	60 204	62 805	*116 157*
2050	47 856	44 130	57 445	65 846	86 786	*237 981*
			E. Age group 15-64 (thousands)			
1950	195 578	-	-	-	-	-
1975	220 708	-	-	-	-	-
1995	249 382	-	-	-	-	-
2000	251 299	249 213	249 213	249 382	249 213	*268 773*
2025	230 090	221 083	233 826	249 382	254 334	*426 112*
2050	187 851	174 470	216 929	249 382	325 575	*803 974*
			F. Age group 65+ (thousands)			
1950	28 049	-	-	-	-	-
1975	45 647	-	-	-	-	-
1995	57 815	-	-	-	-	-
2000	61 596	61 349	61 349	61 357	61 349	*62 310*
2025	84 326	83 096	83 973	84 964	84 778	*98 786*
2050	95 600	92 240	98 067	103 280	107 603	*186 386*
			G. Potential support ratio 15-64/65+			
1950	6.97	-	-	-	-	-
1975	4.84	-	-	-	-	-
1995	4.31	-	-	-	-	-
2000	4.08	4.06	4.06	4.06	4.06	*4.31*
2025	2.73	2.66	2.78	2.94	3.00	*4.31*
2050	1.96	1.89	2.21	2.41	3.03	*4.31*

** Scenario VI is considered to be demographically unrealistic.*

Figure 26. Population of the European Union in 2050, indicating those who are post-1995 migrants and their descendants, by scenario

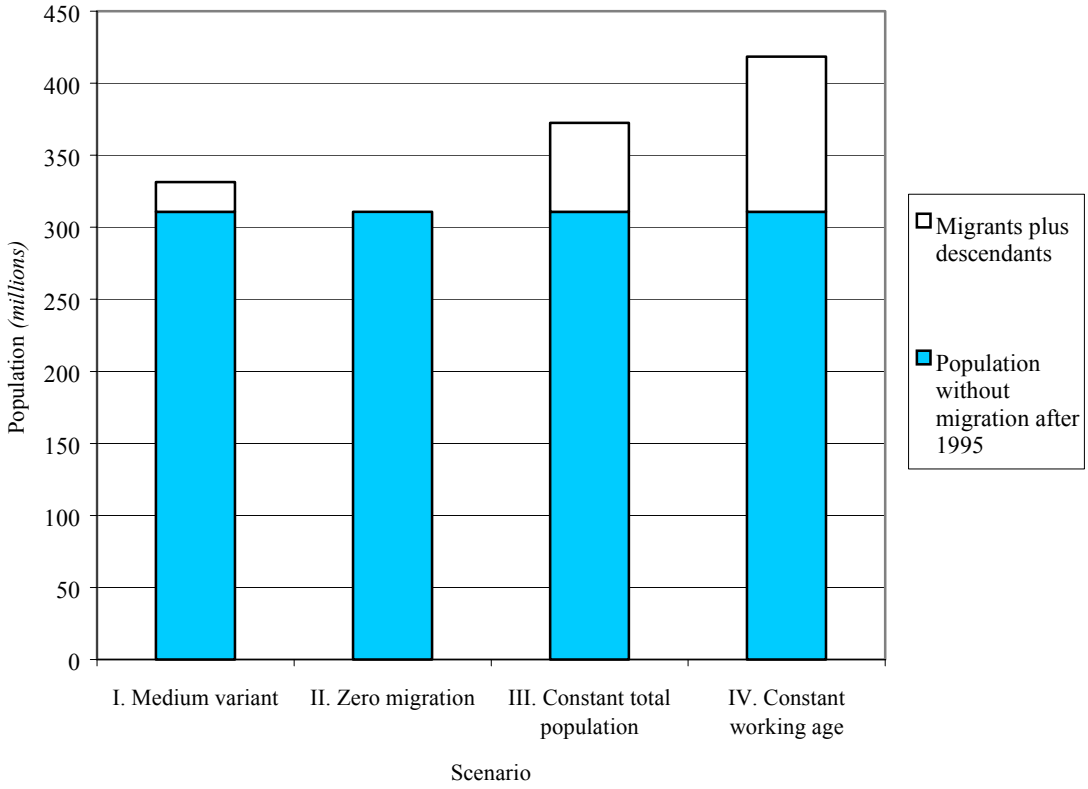


Figure 27. Age-sex structures by scenario for 2000, 2025 and 2050
(*Population in millions*)

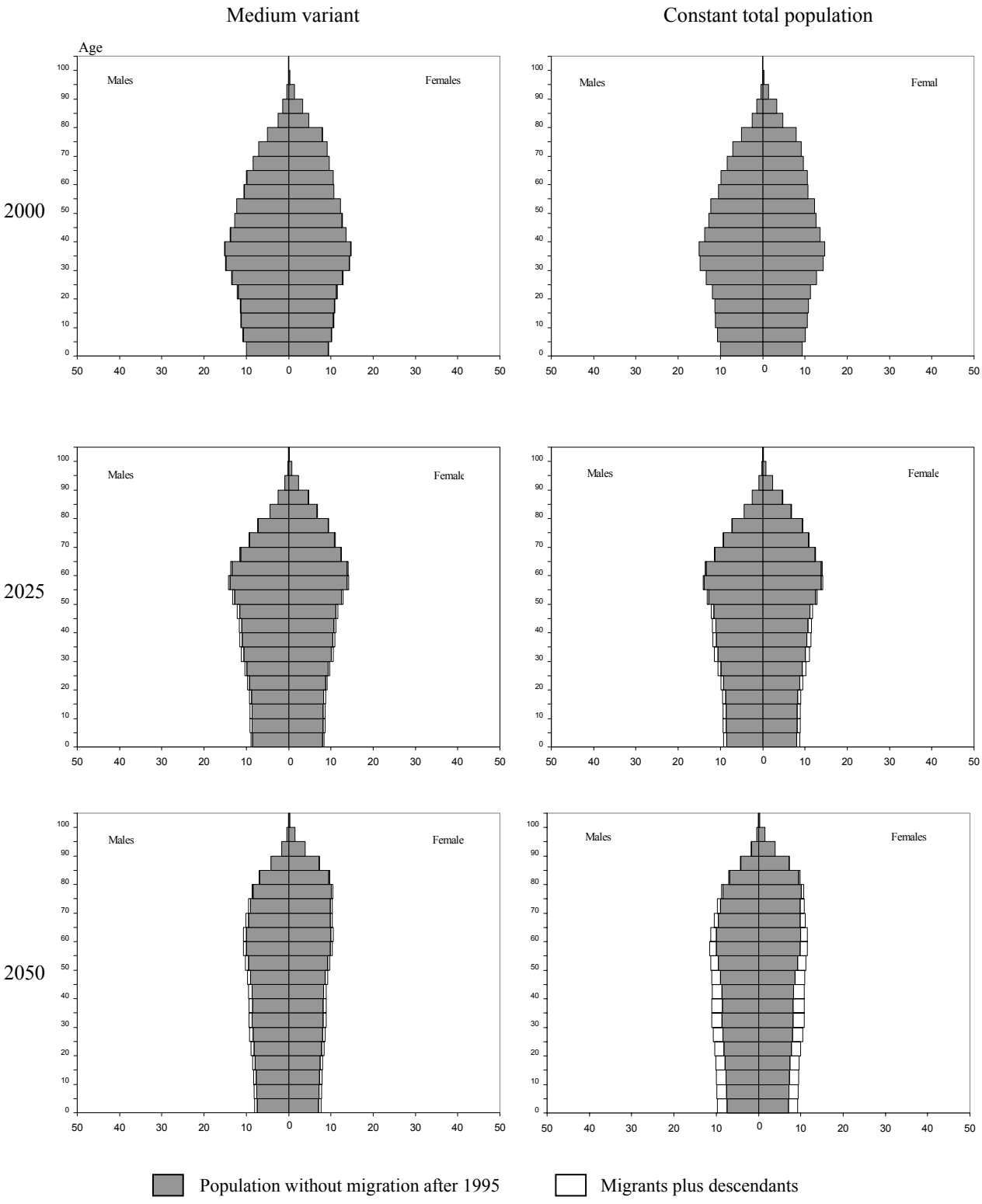
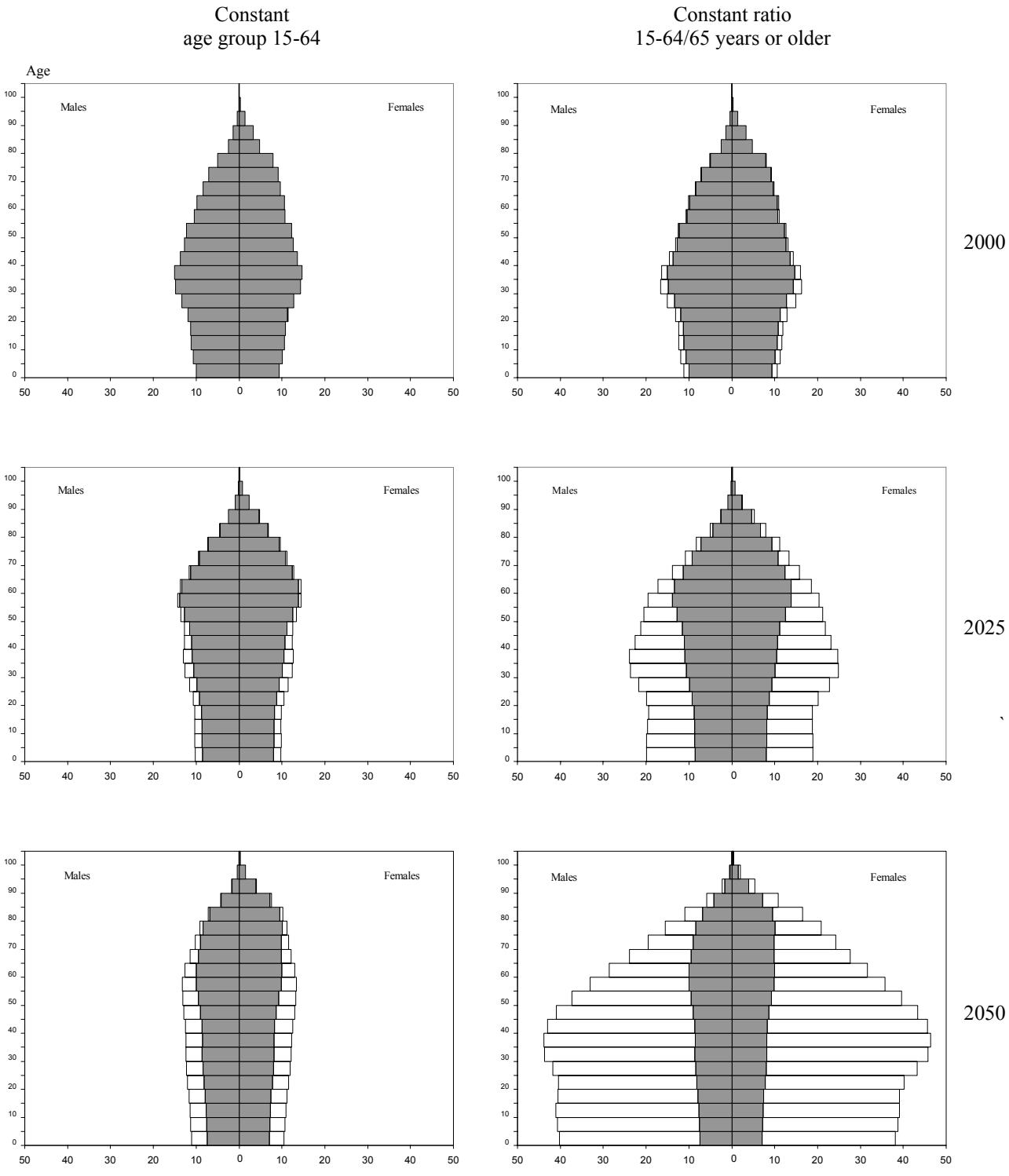


Figure 27 (continued)



V. CONCLUSIONS AND IMPLICATIONS

The present study focuses on the question of whether replacement migration is a solution to population decline and population ageing. Replacement migration refers to the international migration that would be needed to offset declines in the size of a population, and declines in the population of working age, as well as to offset the overall ageing of a population.

The present study investigates the possible effects of international migration on the population size and age structure of a range of countries that have in common a fertility pattern below the replacement level. In the absence of migration, all countries with fertility below replacement level will see their population size start declining at some point of time in the near future, if this is not already the case today. In some countries, the projected declines in population size during the first half of the twenty-first century are as high as one quarter or one third of the entire population of the country.

In addition, the lower the levels of fertility decline, the more pronounced will be the ageing of the population of the country. One of the major consequences of population ageing is the reduction in the ratio between the population in working-age group 15-64 years and the population 65 years or older, or the potential support ratio (PSR). Everything else being equal, a lower potential support ratio means that it is much more onerous for the working-age population to support the needs of the older retired population.

While to some extent an increase in the proportion of elderly persons aged 65 years or older is accompanied by a decrease in the proportion of children under 15 years of age, the two age groups are not directly comparable. Some studies have estimated that for an industrialized country, on average, the cost of supporting a person aged 65 years and over is substantially greater than the cost of supporting a young person less than 20 years old. A number of researchers, including Foot (1989), Cutler, Poterba, Sheiner, and Summers (1990), and Ahlburg and Vaupel (1993), report that when considering the public provision of programme or taking into account private non-medical expenses, public education expenses and medical care, the costs are roughly two and a half times greater to support an older person (aged 65 or older) than to support a young person (under 20 years of age).

While below-replacement fertility is the major cause of population decline and population ageing, even a sudden sharp increase in fertility in the short to medium term would not substantially alter the situation regarding the potential support ratios. Of course, as was shown earlier in this report, the potential support ratios could be maintained at current levels by increasing the upper limit to the working-age population. In most cases, the upper limit would need to be raised to roughly 75 years. However, if retirement ages remain essentially where they are today, increasing the size of the working-age population through international migration is the only option in the short to medium term to reduce the declines in the potential support ratio.

The present study considers countries in which current fertility ranges from 1.2 to 2.0 children per woman. For France, the United Kingdom, the United States and the European Union, the number of migrants needed to offset population decline is less than or comparable to recent past experience. While this is also the case for Germany and the Russian Federation, their migration flows in the 1990s were relatively large due to reunification and dissolution respectively. In contrast, for Italy, Japan, the Republic of Korea and Europe, a level of immigration much higher than that experienced in the recent past would be needed to offset population decline. As a result of this higher level of immigration for Italy, Japan and Europe, 18 to 29 per cent of the 2050 population would be post-1995 immigrants and their descendants; for the Republic of Korea, the comparable figure is 3 per cent.

In the absence of migration, the size of the working-age population declines faster than the overall population. As a result of this faster rate of decline, the amount of migration needed to prevent a decline in the working-age population is larger than that for the overall population. In the four countries where fertility levels are close to the replacement level, the resultant population in 2050 would include 8 to 14 per cent post-1995 migrants and their descendants. In the other six countries and regions, the post-1995 migrants and their descendants would represent between 26 and 39 per cent of the 2050 population. While some of these numbers may appear to be high, they remain within the range of migration experienced in the recent past in some industrialized countries. For example, in 1990, 16 per cent of the population of Canada and Switzerland and 23 per cent of the population of Australia were foreign-born.

In contrast to the migration streams needed to offset total or working-age population decline, the levels of migration that would be needed to prevent the countries from ageing are of substantially larger magnitudes. By 2050, these larger migration flows would result in populations where the proportion of post-1995 migrants and their descendants would range between 59 per cent and 99 per cent.* Such high levels of migration have not been observed in the past for any of these countries or regions. Moreover, it seems extremely unlikely that such flows could happen in these countries in the foreseeable future. Therefore, it appears inevitable that the populations of the low-fertility countries will age rapidly in the twenty-first century.

The consequences of a much older population age-structure than in the past are numerous and far-reaching. One important consideration that has been examined in this study is the potential support ratio. The current system of providing income and health services for older persons who are no longer working has been based, by and large, on an age structure with a potential support ratio of 4 to 5 persons in working-age for each older person aged 65 years or older. If the current age at retirement does not change, the PSR is projected to decline to about 2.

A decline of the PSR from 4 or 5 to 2, or even to 3, would certainly create the need to reconsider seriously the modalities of the present system of pensions and health care for the elderly. Theoretically, as noted above, a possible option would be to increase the upper limit of the working age sufficiently to attain a sustainable PSR. Such an option would simultaneously increase the number of working-age persons and reduce the number of non-working older persons. Other possible options that may need to be examined thoroughly include the adjustment of economic measures, such as increased labour-force participation, higher contributions from workers and employers, and lower benefits provided to retirees. Certainly, increased productivity in the future may increase the available resources from the working-age population. However, it is also possible that increased productivity may lead to increased aspirations and demands from both the working-age and the retired populations.

During the second half of the twentieth century, the industrialized countries have benefited from population sizes and population age-structures that were the result of a history of moderate levels of fertility and low mortality. These favourable demographic circumstances made possible, to a large extent, the provision of relatively generous benefits to retirees at comparatively low costs to workers and employers. However, these age-structures were not permanent, but merely transitional.

During the first half of the twenty-first century, the populations of most industrialized countries are projected to become smaller and older in response to below-replacement fertility as well as increased longevity. The consequences of significant population decline and population ageing are not well under-

* Stabilizing the age structure at 3 persons of working-age for each person of retirement age would also require very large numbers of immigrants.

stood as they are new demographic experiences for countries. Keeping retirement and health-care systems for older persons solvent in the face of declining and ageing populations, for example, constitutes a new situation that poses serious challenges for Governments and civil society.

Finally, the new challenges being brought about by declining and ageing populations will require objective, thorough and comprehensive reassessments of many established economic, social and political policies and programmes. Such reassessments will need to incorporate a long-term perspective. Critical issues to be addressed in those reassessments would include (a) appropriate ages for retirement; (b) levels, types and nature of retirement and health-care benefits for the elderly; (c) labour-force participation; (d) assessed amounts of contributions from workers and employers needed to support retirement and health-care benefits for the increasing elderly population; and (e) policies and programmes relating to international migration, in particular replacement migration, and the integration of large numbers of recent migrants and their descendants. In this context, it should be noted that immigrants to one country are emigrants from another country. As such, international migration must be seen as part of the larger globalization process taking place throughout the world, influencing the economic, political and cultural character of both sending and receiving countries. While orderly international migration can provide countries of origin with remittances and facilitate the transfer of skills and technology, it also may entail the loss of needed human resources. Similarly, international migration can provide countries of destination with needed human resources and talent, but may also give rise to social tensions. Effective international migration policies must therefore take into account the impact on both the host society and countries of origin.

ANNEX TABLES

TABLE A.1. FRANCE, *1998 REVISION*

FRANCE

A. ESTIMATES

Indicator	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995
Population (thousands)										
Total	41 829	43 428	45 684	48 758	50 772	52 699	53 880	55 170	56 718	58 020
Males	20 105	20 971	22 162	23 737	24 792	25 807	26 312	26 900	27 613	28 279
Females	21 723	22 457	23 522	25 021	25 980	26 892	27 568	28 270	29 104	29 741
Sex ratio (per 100 females)	92.6	93.4	94.2	94.9	95.4	96.0	95.4	95.2	94.9	95.1
Age distribution:										
Percentage aged 0-4	9.5	9.0	8.8	8.7	8.3	7.8	6.9	6.9	6.7	6.3
Percentage aged 5-14	13.2	15.4	17.6	16.9	16.5	16.1	15.4	14.3	13.6	13.2
Percentage aged 15-24	15.2	13.7	12.4	14.5	16.4	16.1	15.8	15.5	15.0	14.0
Percentage aged 60 or over	16.2	16.3	16.8	17.5	18.1	18.3	17.2	18.2	19.1	20.0
Percentage aged 65 or over	11.4	11.6	11.6	12.1	12.9	13.5	14.0	13.0	14.0	15.0
Percentage of women aged 15-49	47.3	44.9	42.6	43.4	46.1	46.2	46.9	47.6	48.6	49.1
Median age (years)	34.5	32.9	33.0	32.7	32.3	31.6	32.5	33.7	34.7	36.1
Population density (per sq km)	76	79	83	88	92	96	98	100	103	105

	1950-1955	1955-1960	1960-1965	1965-1970	1970-1975	1975-1980	1980-1985	1985-1990	1990-1995
Population change per year (thousands)	320	451	615	403	385	236	258	309	260
Births per year (thousands)	830	818	852	853	841	746	792	772	734
Deaths per year (thousands)	544	525	531	551	551	547	555	531	546
Population growth rate (percentage)	0.75	1.01	1.30	0.81	0.75	0.44	0.47	0.55	0.45
Crude birth rate (per 1,000 population)	19.5	18.4	18.0	17.2	16.3	14.0	14.5	13.8	12.8
Crude death rate (per 1,000 population)	12.8	11.8	11.2	11.1	10.7	10.3	10.2	9.5	9.5
Total fertility rate (per woman)	2.73	2.71	2.85	2.61	2.31	1.86	1.87	1.81	1.72
Gross reproduction rate (per woman)	1.33	1.32	1.39	1.27	1.13	0.91	0.91	0.88	0.84
Net reproduction rate (per woman)	1.26	1.27	1.34	1.23	1.10	0.89	0.90	0.87	0.83
Infant mortality rate (per 1,000 births)	45	33	25	21	16	11	9	8	7
Life expectancy at birth (years)									
Males	63.7	66.5	67.6	67.9	68.6	69.7	70.8	72.0	73.4
Females	69.5	72.9	74.5	75.4	76.3	77.8	78.9	80.3	81.5
Both sexes combined	66.5	69.6	71.0	71.5	72.4	73.7	74.7	76.0	77.1

B. MEDIUM-VARIANT PROJECTIONS

	1995	2000	2005	2010	2015	2020	2025	2030	2040	2050
Population (thousands)										
Total	58 020	59 080	59 925	60 597	61 108	61 500	61 662	61 632	60 998	59 883
Males	28 279	28 798	29 208	29 519	29 759	29 948	30 019	29 984	29 623	29 117
Females	29 741	30 281	30 718	31 078	31 349	31 553	31 643	31 648	31 375	30 766
Sex ratio (per 100 females)	95.1	95.1	95.1	95.0	94.9	94.9	94.9	94.7	94.4	94.6
Age distribution:										
Percentage aged 0-4	6.3	6.0	5.9	5.8	5.8	5.8	5.6	5.5	5.5	5.6
Percentage aged 5-14	13.2	12.7	12.1	11.7	11.5	11.5	11.5	11.4	11.0	11.2
Percentage aged 15-24	14.0	13.1	12.8	12.4	11.8	11.5	11.4	11.4	11.5	11.2
Percentage aged 60 or over	20.0	20.5	20.9	22.9	24.8	26.5	28.1	29.5	31.1	31.4
Percentage aged 65 or over	15.0	15.9	16.4	16.6	18.4	20.1	21.7	23.2	25.3	25.5
Percentage in school ages 6-11	7.9	7.6	7.2	7.0	6.9	6.9	6.9	6.8	6.6	6.7
Percentage in school ages 12-14	4.0	3.9	3.7	3.5	3.5	3.4	3.4	3.5	3.3	3.3
Percentage in school ages 15-17	4.0	3.9	3.8	3.6	3.5	3.4	3.4	3.5	3.4	3.3
Percentage in school ages 18-23	8.6	7.8	7.7	7.5	7.1	6.9	6.8	6.8	7.0	6.8
Percentage of women aged 15-49	49.1	47.7	46.1	44.4	42.6	41.0	39.7	39.1	38.4	38.4
Median age (years)	36.1	37.6	39.0	40.3	41.5	42.3	43.0	43.6	44.1	43.9
Population density (per sq km)	105	107	109	110	111	112	112	112	111	109

	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2025-2030	2030-2040	2040-2050
Population change per year (thousands)	212	169	134	102	78	32	-6	-63	-112
Births per year (thousands)	715	705	706	712	719	699	682	673	670
Deaths per year (thousands)	543	566	591	620	646	667	688	737	782
Net migration per year (thousands)	40	30	20	10	5	0	0	0	0
Population growth rate (percentage)	0.36	0.28	0.22	0.17	0.13	0.05	- 0.01	- 0.10	- 0.18
Crude birth rate (per 1,000 population)	12.2	11.8	11.7	11.7	11.7	11.3	11.1	11.0	11.1
Crude death rate (per 1,000 population)	9.3	9.5	9.8	10.2	10.5	10.8	11.2	12.0	12.9
Net migration rate (per 1,000 population)	0.7	0.5	0.3	0.2	0.1	0.0	0.0	0.0	0.0
Total fertility rate (per woman)	1.71	1.75	1.82	1.89	1.96	1.96	1.96	1.96	1.96
Gross reproduction rate (per woman)	0.83	0.85	0.89	0.92	0.96	0.96	0.96	0.96	0.96
Net reproduction rate (per woman)	0.82	0.84	0.88	0.91	0.95	0.95	0.95	0.95	0.95
Infant mortality rate (per 1,000 births)	6	6	6	6	5	5	5	5	5
Mortality under age 5 (per 1,000 births)	8	7	7	6	6	6	6	6	5
Life expectancy at birth (years)									
Males	74.2	75.0	75.5	76.0	76.5	77.0	77.5	78.1	78.9
Females	82.0	82.5	83.0	83.4	83.8	84.2	84.6	85.2	86.0
Both sexes combined	78.1	78.8	79.2	79.7	80.1	80.6	81.1	81.6	82.4

Source: United Nations Population Division, *World Population Prospects: The 1998 Revision*.

TABLE A.1 (*continued*)

FRANCE

C. HIGH-VARIANT PROJECTIONS

	1995	2000	2005	2010	2015	2020	2025	2030	2040	2050
Population (thousands)										
Total	58 020	59 163	60 308	61 327	62 232	63 075	63 909	64 646	66 072	67 413
Males	28 279	28 841	29 404	29 893	30 335	30 755	31 171	31 528	32 222	32 972
Females	29 741	30 322	30 904	31 433	31 897	32 320	32 739	33 118	33 850	34 441
Age distribution:										
Percentage aged 0-4	6.3	6.2	6.3	6.3	6.3	6.4	6.5	6.4	6.7	6.9
Percentage aged 5-14	13.2	12.7	12.1	12.2	12.3	12.4	12.5	12.6	12.9	13.3
Percentage aged 15-24	14.0	13.1	12.8	12.2	11.8	11.8	12.0	12.0	12.3	12.6
Percentage aged 60 or over	20.0	20.5	20.8	22.6	24.4	25.9	27.1	28.2	28.7	27.9
Percentage aged 65 or over	15.0	15.9	16.3	16.4	18.1	19.6	20.9	22.1	23.3	22.7
Percentage of women aged 15-49	49.1	47.6	45.8	43.9	42.0	40.6	39.4	39.0	38.8	39.8
Median age (years)	36.1	37.6	38.8	39.9	40.8	41.3	41.5	41.6	40.6	39.5

	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2025-2030	2030-2040	2040-2050
Population change per year (thousands)	229	229	204	181	169	167	147	143	134
Population growth rate (percentage)	0.39	0.38	0.34	0.29	0.27	0.26	0.23	0.22	0.20
Crude birth rate (per 1,000 population)	12.5	12.8	12.8	12.8	12.9	13.1	13.0	13.5	13.8
Crude death rate (per 1,000 population)	9.3	9.5	9.7	10.0	10.3	10.5	10.7	11.3	11.8
Net migration rate (per 1,000 population)	0.7	0.5	0.3	0.2	0.1	0.0	0.0	0.0	0.0
Total fertility rate (per woman)	1.75	1.90	2.00	2.10	2.20	2.30	2.30	2.36	2.36
Gross reproduction rate (per woman)	0.85	0.93	0.97	1.02	1.07	1.12	1.12	1.15	1.15
Net reproduction rate (per woman)	0.84	0.91	0.96	1.01	1.06	1.11	1.11	1.14	1.14

D. LOW-VARIANT PROJECTIONS

	1995	2000	2005	2010	2015	2020	2025	2030	2040	2050
Population (thousands)										
Total	58 020	59 017	59 523	59 694	59 587	59 242	58 647	57 786	55 150	51 680
Males	28 279	28 766	29 001	29 056	28 979	28 790	28 474	28 013	26 628	24 919
Females	29 741	30 251	30 521	30 638	30 608	30 452	30 173	29 773	28 522	26 760
Age distribution:										
Percentage aged 0-4	6.3	5.9	5.3	5.0	4.9	4.8	4.6	4.4	4.1	4.1
Percentage aged 5-14	13.2	12.7	12.0	11.2	10.4	10.0	9.8	9.6	9.0	8.6
Percentage aged 15-24	14.0	13.1	12.9	12.6	12.0	11.3	10.5	10.2	10.0	9.6
Percentage aged 60 or over	20.0	20.5	21.0	23.2	25.5	27.5	29.6	31.5	34.4	36.4
Percentage aged 65 or over	15.0	15.9	16.5	16.9	18.9	20.9	22.8	24.7	27.9	29.6
Percentage of women aged 15-49	49.1	47.7	46.4	45.0	43.5	41.8	40.1	39.1	37.1	35.5
Median age (years)	36.1	37.6	39.3	40.9	42.4	43.8	44.9	46.1	48.2	49.8

	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2025-2030	2030-2040	2040-2050
Population change per year (thousands)	199	101	34	-21	-69	-119	-172	-264	-347
Population growth rate (percentage)	0.34	0.17	0.06	- 0.04	- 0.12	- 0.20	- 0.30	- 0.47	- 0.65
Crude birth rate (per 1,000 population)	12.0	10.7	10.1	9.9	9.6	9.3	8.8	8.3	8.1
Crude death rate (per 1,000 population)	9.3	9.5	9.9	10.4	10.9	11.3	11.8	13.0	14.6
Net migration rate (per 1,000 population)	0.7	0.5	0.3	0.2	0.1	0.0	0.0	0.0	0.0
Total fertility rate (per woma.)	1.68	1.58	1.56	1.56	1.56	1.56	1.56	1.56	1.56
Gross reproduction rate (per woman)	0.82	0.77	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Net reproduction rate (per woman)	0.81	0.76	0.75	0.75	0.75	0.75	0.75	0.75	0.75

E. CONSTANT-VARIANT PROJECTIONS

	1995	2000	2005	2010	2015	2020	2025	2030	2040	2050
Population (thousands)										
Total	58 020	59 107	59 898	60 383	60 582	60 544	60 285	59 819	58 106	55 602

	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2025-2030	2030-2040	2040-2050
Population growth rate (percentage)	0.37	0.27	0.16	0.07	- 0.01	- 0.09	- 0.16	- 0.29	- 0.44
Crude birth rate (per 1,000 population)	12.3	11.7	11.1	10.7	10.4	10.2	9.9	9.6	9.3
Crude death rate (per 1,000 population)	9.3	9.5	9.8	10.2	10.7	11.0	11.5	12.5	13.7

Source: United Nations Population Division, *World Population Prospects: The 1998 Revision*.

TABLE A.2. FRANCE, REPLACEMENT MIGRATION SCENARIOS

FRANCE

Scenario	I	II	III	IV	V	*VI*
Period	Medium variant	Medium variant with zero migration	Constant total population	Constant age group 15-64	Ratio 15-64/65+ not less than 3.0	*Constant ratio 15-64/65 years or older*
			A. Average annual net migration (thousands)			
1995-2000	40	0	0	0	0	*842*
2000-2005	30	0	0	0	0	*333*
2005-2010	20	0	0	0	0	*219*
2010-2015	10	0	0	179	0	*1 934*
2015-2020	5	0	0	207	0	*1 988*
2020-2025	0	0	0	182	783	*1 937*
2025-2030	0	0	6	155	1064	*2 002*
2030-2035	0	0	42	113	811	*2 046*
2035-2040	0	0	70	117	546	*2 204*
2040-2045	0	0	86	54	0	*2 057*
2045-2050	0	0	91	86	3	*3 196*
Grand total 1995-2050	525	0	1 473	5 459	16 037	*93 794*
			B. Total population (thousands)			
1995	58 020	58 020	58 020	58 020	58 020	*58 020*
2000	59 080	58 879	58 879	58 879	58 879	*63 310*
2005	59 925	59 571	59 571	59 571	59 571	*66 179*
2010	60 597	60 139	60 139	60 139	60 139	*68 436*
2015	61 108	60 597	60 597	61 545	60 597	*79 702*
2020	61 500	60 960	60 960	63 112	60 960	*92 232*
2025	61 662	61 121	61 121	64 442	65 283	*105 188*
2030	61 632	61 091	61 121	65 505	71 365	*119 014*
2035	61 401	60 862	61 121	66 192	76 441	*133 522*
2040	60 998	60 462	61 121	66 750	80 228	*149 345*
2045	60 474	59 943	61 121	66 890	81 089	*164 994*
2050	59 883	59 357	61 121	67 130	81 719	*187 193*
			C. Age group 15-64 (thousands)			
1995	37 986	37 986	37 986	37 986	37 986	*37 986*
2000	38 620	38 488	38 488	38 488	38 488	*41 593*
2005	39 378	39 145	39 145	39 145	39 145	*43 734*
2010	39 925	39 625	39 625	39 625	39 625	*45 381*
2015	39 294	38 965	38 965	39 625	38 965	*52 319*
2020	38 483	38 145	38 145	39 625	38 145	*59 918*
2025	37 686	37 355	37 355	39 625	40 247	*67 847*
2030	36 919	36 594	36 615	39 625	43 661	*76 551*
2035	36 231	35 913	36 092	39 625	46 552	*86 078*
2040	35 512	35 199	35 652	39 625	48 753	*96 507*
2045	35 058	34 750	35 557	39 625	49 488	*106 826*
2050	34 586	34 282	35 493	39 625	50 152	*121 047*
			D. Potential support ratio 15-64/65 or older			
1995	4.36	4.36	4.36	4.36	4.36	*4.36*
2000	4.10	4.10	4.10	4.10	4.10	*4.36*
2005	4.02	4.02	4.02	4.02	4.02	*4.36*
2010	3.96	3.96	3.96	3.96	3.96	*4.36*
2015	3.49	3.49	3.49	3.54	3.49	*4.36*
2020	3.11	3.11	3.11	3.20	3.11	*4.36*
2025	2.81	2.81	2.81	2.95	3.00	*4.36*
2030	2.59	2.59	2.59	2.76	3.00	*4.36*
2035	2.42	2.42	2.43	2.62	3.00	*4.36*
2040	2.31	2.31	2.33	2.53	3.00	*4.36*
2045	2.28	2.28	2.32	2.51	3.00	*4.36*
2050	2.26	2.26	2.33	2.49	3.00	*4.36*

TABLE A.2 (*continued*)

FRANCE

Scenario	I	II	III	IV	V	*VI*
Period	Medium variant	Medium variant with zero migration	Constant total population	Constant age group 15-64	Ratio 15-64/65+ not less than 3.0	*Constant ratio 15-64/65 years or older*
			E. Age group 65 or older (thousands)			
1995	8 708	8 708	8 708	8 708	8 708	*8 708*
2000	9 413	9 381	9 381	9 381	9 381	*9 535*
2005	9 807	9 749	9 749	9 749	9 749	*10 026*
2010	10 087	10 009	10 009	10 009	10 009	*10 403*
2015	11 252	11 158	11 158	11 191	11 158	*11 994*
2020	12 389	12 281	12 281	12 366	12 281	*13 736*
2025	13 388	13 271	13 271	13 417	13 416	*15 554*
2030	14 275	14 150	14 151	14 364	14 554	*17 549*
2035	14 956	14 825	14 834	15 114	15 517	*19 733*
2040	15 402	15 268	15 294	15 661	16 251	*22 124*
2045	15 378	15 243	15 294	15 786	16 471	*24 490*
2050	15 285	15 151	15 234	15 932	16 717	*27 750*
			F. Percentage in age group 65 or older			
1995	15.0	15.0	15.0	15.0	15.0	*15.0*
2000	15.9	15.9	15.9	15.9	15.9	*15.1*
2005	16.4	16.4	16.4	16.4	16.4	*15.1*
2010	16.6	16.6	16.6	16.6	16.6	*15.2*
2015	18.4	18.4	18.4	18.2	18.4	*15.0*
2020	20.1	20.1	20.1	19.6	20.1	*14.9*
2025	21.7	21.7	21.7	20.8	20.6	*14.8*
2030	23.2	23.2	23.2	21.9	20.4	*14.7*
2035	24.4	24.4	24.3	22.8	20.3	*14.8*
2040	25.2	25.3	25.0	23.5	20.3	*14.8*
2045	25.4	25.4	25.0	23.6	20.3	*14.8*
2050	25.5	25.5	24.9	23.7	20.5	*14.8*
			G. Age group 0-14 (thousands)			
1995	11 326	11 326	11 326	11 326	11 326	*11 326*
2000	11 047	11 009	11 009	11 009	11 009	*12 182*
2005	10 740	10 677	10 677	10 677	10 677	*12 419*
2010	10 585	10 505	10 505	10 505	10 505	*12 652*
2015	10 563	10 475	10 475	10 729	10 475	*15 390*
2020	10 627	10 534	10 534	11 120	10 534	*18 578*
2025	10 588	10 495	10 495	11 399	11 620	*21 788*
2030	10 438	10 347	10 355	11 515	13 150	*24 914*
2035	10 214	10 124	10 194	11 453	14 372	*27 711*
2040	10 084	9 996	10 175	11 464	15 223	*30 714*
2045	10 038	9 950	10 269	11 478	15 131	*33 677*
2050	10 012	9 924	10 393	11 572	14 850	*38 396*
			H. Potential support ratio in 2050, by age at entry into non-working-age population			
Age						
65	2.26	2.26	2.33	2.49	3.00	*4.36*
70	3.19	3.19	3.28	3.53	4.22	*6.49*
75	4.71	4.71	4.84	5.22	6.17	*10.00*
80	7.75	7.75	7.96	8.60	10.10	*17.09*

NOTE: The six scenarios can be described briefly as follows:

I – Corresponds to the medium variant of the official United Nations population projections (*World Population Prospects, 1998 Revision*).
II – This scenario amends the medium variant by assuming no migration after 1995.
III – This scenario keeps the total population figure constant at the highest level that it would reach in the absence of migration after 1995.
IV – This scenario keeps the number of persons aged 15-64 constant at the highest level that it would reach in the absence of migration after 1995.
V – This scenario prevents the ratio of persons aged 15-64 to persons aged 65 and above from falling below 3.0.
VI – This scenario keeps the ratio of persons aged 15-64 and above at the highest level that it would reach in the absence of migration after 1995. This scenario is considered to be demographically unrealistic.

TABLE A.3. GERMANY, *1998 REVISION*

GERMANY

A. ESTIMATES

Indicator	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995
Population (thousands)										
Total	68 376	70 326	72 673	76 031	77 709	78 679	78 304	77 668	79 365	81 661
Males	31 493	32 573	33 800	35 795	36 718	37 322	37 264	37 051	38 276	39 731
Females	36 883	37 753	38 873	40 236	40 991	41 357	41 040	40 617	41 088	41 930
Sex ratio (per 100 females)	85.4	86.3	87.0	89.0	89.6	90.2	90.8	91.2	93.2	94.8
Age distribution:										
Percentage aged 0-4	6.6	7.4	7.8	8.5	7.7	5.6	5.1	5.3	5.6	5.0
Percentage aged 5-14	16.6	13.8	13.4	14.4	15.6	16.0	13.4	10.7	10.5	11.2
Percentage aged 15-24	14.3	15.8	15.8	13.1	12.8	14.5	16.1	16.5	13.7	11.3
Percentage aged 60 or over	14.6	15.8	17.3	18.8	19.9	20.4	19.3	19.9	20.4	20.9
Percentage aged 65 or over	9.7	10.7	11.5	12.5	13.7	14.8	15.6	14.6	15.0	15.5
Percentage of women aged 15-49	50.6	49.6	46.6	43.5	44.4	45.0	47.0	48.8	47.2	46.6
Median age (years)	35.4	34.5	34.7	34.4	34.3	35.4	36.4	37.1	37.7	38.4
Population density (per sq km)	192	197	204	213	218	221	220	218	222	229

	1950-1955	1955-1960	1960-1965	1965-1970	1970-1975	1975-1980	1980-1985	1985-1990	1990-1995
Population change per year (thousands)	390	469	672	336	194	- 75	- 127	339	459
Births per year (thousands)	1 106	1 183	1 330	1 232	886	813	839	874	807
Deaths per year (thousands)	771	829	880	950	961	957	938	916	894
Population growth rate (percentage)	0.56	0.66	0.90	0.44	0.25	- 0.10	- 0.16	0.43	0.57
Crude birth rate (per 1,000 population)	16.0	16.5	17.9	16.0	11.3	10.4	10.8	11.1	10.0
Crude death rate (per 1,000 population)	11.1	11.6	11.8	12.4	12.3	12.2	12.0	11.7	11.1
Total fertility rate (per woman)	2.16	2.30	2.49	2.32	1.64	1.52	1.46	1.43	1.30
Gross reproduction rate (per woman)	1.05	1.12	1.21	1.13	0.80	0.74	0.71	0.70	0.63
Net reproduction rate (per woman)	0.85	0.96	1.06	1.02	0.77	0.72	0.70	0.69	0.62
Infant mortality rate (per 1,000 births)	51	38	29	23	21	15	11	8	6
Life expectancy at birth (years)									
Males	65.3	66.6	67.4	67.8	67.9	69.0	70.3	71.7	72.6
Females	69.6	71.5	72.9	73.6	73.8	75.5	76.8	78.2	79.2
Both sexes combined	67.5	69.1	70.3	70.8	71.0	72.5	73.8	74.8	76.0

B. MEDIUM-VARIANT PROJECTIONS

	1995	2000	2005	2010	2015	2020	2025	2030	2040	2050
Population (thousands)										
Total	81 661	82 220	82 365	82 032	81 574	80 996	80 238	79 252	76 531	73 303
Males	39 731	40 266	40 550	40 539	40 410	40 177	39 827	39 357	37 995	36 387
Females	41 930	41 954	41 815	41 493	41 164	40 819	40 411	39 895	38 536	36 916
Sex ratio (per 100 females)	94.8	96.0	97.0	97.7	98.2	98.4	98.6	98.7	98.6	98.6
Age distribution:										
Percentage aged 0-4	5.0	4.6	4.2	4.1	4.2	4.4	4.4	4.3	4.2	4.4
Percentage aged 5-14	11.2	10.9	9.9	9.2	8.7	8.7	9.0	9.2	9.0	9.0
Percentage aged 15-24	11.3	11.1	11.8	11.5	10.6	9.9	9.4	9.4	10.1	10.1
Percentage aged 60 or over	20.9	23.2	24.6	25.3	26.8	28.9	31.8	34.4	34.8	35.3
Percentage aged 65 or over	15.5	16.4	18.5	19.8	20.3	21.6	23.4	26.1	28.8	28.4
Percentage in school ages 6-11	6.8	6.4	5.8	5.4	5.1	5.2	5.4	5.5	5.3	5.4
Percentage in school ages 12-14	3.3	3.5	3.2	3.0	2.7	2.6	2.7	2.8	2.8	2.8
Percentage in school ages 15-17	3.2	3.4	3.5	3.1	2.9	2.7	2.7	2.8	2.9	2.8
Percentage in school ages 18-23	6.8	6.6	7.1	7.2	6.5	6.1	5.7	5.7	6.1	6.1
Percentage of women aged 15-49	46.6	46.7	46.4	44.9	42.1	39.2	38.1	37.8	36.6	36.6
Median age (years)	38.4	40.0	42.1	44.1	45.9	46.9	47.3	47.6	48.7	48.4
Population density (per sq km)	229	230	231	230	229	227	225	222	215	205

	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2025-2030	2030-2040	2040-2050
Population change per year (thousands)	112	29	-67	-92	-116	-152	-197	-272	-323
Births per year (thousands)	754	693	664	684	701	698	678	639	634
Deaths per year (thousands)	882	904	930	975	1 017	1 049	1 075	1 111	1 157
Net migration per year (thousands)	240	240	200	200	200	200	200	200	200
Population growth rate (percentage)	0.14	0.04	- 0.08	- 0.11	- 0.14	- 0.19	- 0.25	- 0.35	- 0.43
Crude birth rate (per 1,000 population)	9.2	8.4	8.1	8.4	8.6	8.7	8.5	8.2	8.5
Crude death rate (per 1,000 population)	10.8	11.0	11.3	11.9	12.5	13.0	13.5	14.3	15.4
Net migration rate (per 1,000 population)	2.9	2.9	2.4	2.4	2.5	2.5	2.5	2.6	2.7
Total fertility rate (per woman)	1.30	1.33	1.37	1.44	1.51	1.58	1.63	1.64	1.64
Gross reproduction rate (per woman)	0.63	0.65	0.66	0.70	0.73	0.77	0.80	0.80	0.80
Net reproduction rate (per woman)	0.63	0.64	0.66	0.69	0.73	0.76	0.79	0.79	0.79
Infant mortality rate (per 1,000 births)	5	5	5	5	5	5	5	4	4
Mortality under age 5 (per 1,000 births)	6	6	5	5	5	5	5	5	5
Life expectancy at birth (years)									
Males	73.9	74.7	75.5	76.0	76.5	77.0	77.5	78.1	78.9
Females	80.2	80.7	81.2	81.7	82.2	82.7	83.1	83.7	84.5
Both sexes combined	77.2	77.8	78.4	78.9	79.4	79.8	80.3	80.9	81.7

Source: United Nations Population Division, *World Population Prospects: The 1998 Revision*.

TABLE A.3 (*continued*)

GERMANY

C. HIGH-VARIANT PROJECTIONS

	1995	2000	2005	2010	2015	2020	2025	2030	2040	2050
Population (thousands)										
Total	81 661	82 393	83 056	83 364	83 606	83 811	83 955	84 061	83 977	83 817
Males	39 731	40 355	40 905	41 223	41 453	41 622	41 734	41 825	41 814	41 777
Females	41 930	42 038	42 152	42 141	42 154	42 189	42 220	42 237	42 162	42 039
Age distribution:										
Percentage aged 0-4	5.0	4.8	4.8	4.8	5.0	5.1	5.3	5.4	5.4	5.7
Percentage aged 5-14	11.2	10.9	10.1	9.9	9.8	10.0	10.3	10.7	11.0	11.3
Percentage aged 15-24	11.3	11.1	11.7	11.3	10.6	10.4	10.3	10.5	11.2	11.6
Percentage aged 60 or over	20.9	23.1	24.4	24.9	26.2	27.9	30.4	32.4	31.7	30.9
Percentage aged 65 or over	15.5	16.3	18.4	19.5	19.8	20.8	22.3	24.7	26.2	24.8
Percentage of women aged 15-49	46.6	46.7	46.0	44.3	41.3	38.7	38.0	38.0	37.7	38.9
Median age (years)	38.4	39.9	41.8	43.6	45.2	45.6	45.4	45.3	44.9	43.2

	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2025-2030	2030-2040	2040-2050
Population change per year (thousands)	146	133	61	49	41	29	21	- 8	- 16
Population growth rate (percentage)	0.18	0.16	0.07	0.06	0.05	0.03	0.03	- 0.01	- 0.02
Crude birth rate (per 1,000 population)	9.6	9.6	9.5	9.9	10.3	10.5	10.7	10.8	11.3
Crude death rate (per 1,000 population)	10.8	10.9	11.2	11.7	12.2	12.5	12.8	13.3	13.8
Net migration rate (per 1,000 population)	2.9	2.9	2.4	2.4	2.4	2.4	2.4	2.4	2.4
Total fertility rate (per woman)	1.36	1.53	1.63	1.73	1.83	1.93	2.02	2.04	2.04
Gross reproduction rate (per woman)	0.66	0.75	0.79	0.84	0.89	0.94	0.98	0.99	0.99
Net reproduction rate (per woman)	0.66	0.74	0.79	0.83	0.88	0.93	0.98	0.98	0.99

D. LOW-VARIANT PROJECTIONS

	1995	2000	2005	2010	2015	2020	2025	2030	2040	2050
Population (thousands)										
Total	81 661	82 071	81 879	81 147	80 131	78 831	77 193	75 196	70 312	64 615
Males	39 731	40 189	40 300	40 085	39 669	39 066	38 264	37 275	34 805	31 932
Females	41 930	41 881	41 579	41 062	40 462	39 765	38 929	37 920	35 507	32 683
Age distribution:										
Percentage aged 0-4	5.0	4.4	3.8	3.6	3.6	3.6	3.4	3.2	2.9	3.0
Percentage aged 5-14	11.2	10.9	9.8	8.7	7.9	7.7	7.7	7.5	6.9	6.6
Percentage aged 15-24	11.3	11.1	11.9	11.7	10.6	9.5	8.8	8.7	8.7	8.2
Percentage aged 60 or over	20.9	23.2	24.7	25.6	27.3	29.6	33.1	36.2	37.9	40.1
Percentage aged 65 or over	15.5	16.4	18.6	20.0	20.7	22.2	24.3	27.6	31.3	32.2
Percentage of women aged 15-49	46.6	46.8	46.7	45.4	42.6	39.6	38.4	37.9	35.6	33.9
Median age (years)	38.4	40.1	42.2	44.4	46.5	47.9	48.9	49.6	51.7	53.2

	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2025-2030	2030-2040	2040-2050
Population change per year (thousands)	82	-38	-146	-203	-260	-328	-400	-488	-570
Population growth rate (percentage)	0.10	- 0.05	- 0.18	- 0.25	- 0.33	- 0.42	- 0.52	- 0.67	- 0.85
Crude birth rate (per 1,000 population)	8.8	7.6	7.2	7.1	7.0	6.7	6.2	5.8	5.7
Crude death rate (per 1,000 population)	10.8	11.0	11.4	12.1	12.8	13.4	14.1	15.2	17.1
Net migration rate (per 1,000 population)	2.9	2.9	2.5	2.5	2.5	2.6	2.6	2.7	3.0
Total fertility rate (per woman)	1.25	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Gross reproduction rate (per woman)	0.61	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58
Net reproduction rate (per woman)	0.60	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58

E. CONSTANT-VARIANT PROJECTIONS

	1995	2000	2005	2010	2015	2020	2025	2030	2040	2050
Population (thousands)										
Total	81 661	82 215	82 282	81 792	81 013	79 959	78 586	76 881	72 624	67 552

	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2025-2030	2030-2040	2040-2050
Population growth rate (percentage)	0.14	0.02	- 0.12	- 0.19	- 0.26	- 0.35	- 0.44	- 0.57	- 0.72
Crude birth rate (per 1,000 population)	9.2	8.2	7.7	7.6	7.5	7.2	6.9	6.5	6.4
Crude death rate (per 1,000 population)	10.8	11.0	11.3	12.0	12.6	13.2	13.8	14.8	16.5

Source: United Nations Population Division, *World Population Prospects: The 1998 Revision*.

TABLE A.4. GERMANY, REPLACEMENT MIGRATION SCENARIOS

GERMANY

Scenario	I	II	III	IV	V	*VI*
Period	Medium variant	Medium variant with zero migration	Constant total population	Constant age group 15-64	Ratio 15-64/65+ not less than 3.0	*Constant ratio 15-64/65 years or older*
			A. Average annual net migration (thousands)			
1995-2000	240	0	130	176	0	*1 398*
2000-2005	240	0	215	417	0	*3 251*
2005-2010	200	0	268	334	0	*1 879*
2010-2015	200	0	286	294	0	*806*
2015-2020	200	0	301	578	1 056	*2 081*
2020-2025	200	0	325	740	2 100	*3 347*
2025-2030	200	0	357	896	2 837	*5 646*
2030-2035	200	0	399	747	2 103	*6 462*
2035-2040	200	0	422	287	0	*4 718*
2040-2045	200	0	432	213	0	*4 016*
2045-2050	200	0	431	360	0	*4 096*
Grand total 1995-2050	11 400	0	17 838	25 209	40 481	*188 497*
			B. Total population (thousands)			
1995	81 661	81 661	81 661	81 661	81 661	*81 661*
2000	82 220	80 985	81 661	81 898	80 985	*88 241*
2005	82 365	79 819	81 661	82 965	79 819	*104 482*
2010	82 032	78 302	81 661	83 397	78 302	*114 386*
2015	81 574	76 601	81 661	83 539	76 601	*119 011*
2020	80 996	74 733	81 661	85 076	80 258	*130 126*
2025	80 238	72 643	81 661	87 451	89 661	*148 307*
2030	79 252	70 287	81 661	90 645	103 615	*179 530*
2035	77 989	67 636	81 661	93 030	114 503	*216 669*
2040	76 531	64 785	81 661	92 923	114 655	*246 258*
2045	74 948	61 817	81 661	92 178	114 132	*272 559*
2050	73 303	58 812	81 661	92 022	113 181	*299 272*
			C. Age group 15-64 (thousands)			
1995	55 763	55 763	55 763	55 763	55 763	*55 763*
2000	56 025	55 114	55 595	55 763	55 114	*60 271*
2005	55 424	53 520	54 835	55 763	53 520	*71 107*
2010	54 917	52 103	54 516	55 763	52 103	*78 064*
2,015	54 503	50 736	54 391	55 763	50 736	*81 650*
2020	52 995	48 249	53 277	55 763	52 149	*88 910*
2025	50 773	45 042	51 588	55 763	57 029	*100 331*
2030	47 855	41 145	49 357	55 763	64 603	*119 722*
2035	45 353	37 698	47 718	55 763	70 814	*143 049*
2040	44 425	35 922	47 813	55 763	71 605	*162 446*
2045	43 767	34 514	48 307	55 763	72 637	*180 580*
2050	42 706	32 744	48 426	55 763	72 667	*199 400*
			D. Potential support ratio 15-64/65 or older			
1995	4.41	4.41	4.41	4.41	4.41	*4.41*
2000	4.17	4.11	4.14	4.15	4.11	*4.41*
2005	3.63	3.53	3.60	3.65	3.53	*4.41*
2010	3.38	3.23	3.35	3.42	3.24	*4.41*
2015	3.29	3.10	3.27	3.34	3.10	*4.41*
2020	3.03	2.81	3.04	3.15	3.00	*4.41*
2025	2.71	2.45	2.74	2.91	3.00	*4.41*
2030	2.31	2.04	2.37	2.61	3.00	*4.41*
2035	2.04	1.76	2.12	2.40	3.00	*4.41*
2040	2.02	1.72	2.14	2.39	3.03	*4.41*
2045	2.05	1.75	2.22	2.43	3.14	*4.41*
2050	2.05	1.75	2.26	2.44	3.13	*4.41*

TABLE A.4 (*continued*)

GERMANY

Scenario	I	II	III	IV	V	*VI*
Period	Medium variant	Medium variant with zero migration	Constant total population	Constant age group 15-64	Ratio 15-64/65+ not less than 3.0	*Constant ratio 15-64/65 years or older*
			E. Age group 65 or older (thousands)			
1995	12 634	12 634	12 634	12 634	12 634	*12 634*
2000	13 444	13 403	13 427	13 435	13 403	*13 656*
2005	15 266	15 176	15 247	15 295	15 176	*16 111*
2010	16 247	16 108	16 250	16 326	16 108	*17 687*
2015	16 575	16 380	16 612	16 709	16 380	*18 499*
2020	17 468	17 190	17 536	17 702	17 383	*20 144*
2025	18 762	18 354	18 854	19 144	19 010	*22 732*
2030	20 721	20 133	20 858	21 351	21 534	*27 125*
2035	22 233	21 405	22 467	23 205	23 604	*32 411*
2040	22 027	20 849	22 378	23 337	23 613	*36 805*
2045	21 323	19 692	21 793	22 968	23 146	*40 914*
2050	20 794	18 689	21 428	22 861	23 250	*45 178*
			F. Percentage in age group 65 or older			
1995	15.5	15.5	15.5	15.5	15.5	*15.5*
2000	16.4	16.6	16.4	16.4	16.6	*15.5*
2005	18.5	19.0	18.7	18.4	19.0	*15.4*
2010	19.8	20.6	19.9	19.6	20.6	*15.5*
2015	20.3	21.4	20.3	20.0	21.4	*15.5*
2020	21.6	23.0	21.5	20.8	21.7	*15.5*
2025	23.4	25.3	23.1	21.9	21.2	*15.3*
2030	26.1	28.6	25.5	23.6	20.8	*15.1*
2035	28.5	31.6	27.5	24.9	20.6	*15.0*
2040	28.8	32.2	27.4	25.1	20.6	*14.9*
2045	28.5	31.9	26.7	24.9	20.3	*15.0*
2050	28.4	31.8	26.2	24.8	20.5	*15.1*
			G. Age group 0-14 (thousands)			
1995	13 264	13 264	13 264	13 264	13 264	*13 264*
2000	12 751	12 468	12 640	12 700	12 468	*14 315*
2005	11 675	11 123	11 579	11 907	11 123	*17 265*
2010	10 868	10 091	10 896	11 307	10 091	*18 635*
2015	10 496	9 485	10 657	11 067	9 485	*18 862*
2020	10 534	9 294	10 848	11 611	10 726	*21 072*
2025	10 704	9 248	11 219	12 543	13 623	*25 244*
2030	10 675	9 009	11 446	13 531	17 478	*32 683*
2035	10 403	8 533	11 475	14 063	20 085	*41 210*
2040	10 079	8 015	11 470	13 823	19 437	*47 007*
2045	9 858	7 611	11 562	13 447	18 348	*51 065*
2050	9 803	7 379	11 807	13 398	17 264	*54 694*
			H. Potential support ratio in 2050, by age at entry into non-working-age population			
Age						
65	2.05	1.75	2.26	2.44	3.13	*4.41*
70	2.93	2.48	3.22	3.49	4.45	*6.45*
75	4.25	3.55	4.66	5.08	6.35	*10.02*
80	6.65	5.50	7.29	7.99	9.77	*17.27*

NOTE: The six scenarios can be described briefly as follows:

I – Corresponds to the medium variant of the official United Nations population projections (*World Population Prospects, 1998 Revision*).
II – This scenario amends the medium variant by assuming no migration after 1995.
III – This scenario keeps the total population figure constant at the highest level that it would reach in the absence of migration after 1995.
IV – This scenario keeps the number of persons aged 15-64 constant at the highest level that it would reach in the absence of migration after 1995.
V – This scenario prevents the ratio of persons aged 15-64 to persons aged 65 and above from falling below 3.0.
VI – This scenario keeps the ratio of persons aged 15-64 and above at the highest level that it would reach in the absence of migration after 1995. This scenario is considered to be demographically unrealistic.

TABLE A.5. ITALY, *1998 REVISION*

ITALY

A. ESTIMATES

Indicator	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995
Population (thousands)										
Total	47 104	48 633	50 200	52 112	53 822	55 441	56 434	56 771	57 023	57 338
Males	22 934	23 815	24 584	25 508	26 325	27 072	27 472	27 586	27 677	27 840
Females	24 170	24 818	25 616	26 605	27 497	28 369	28 962	29 185	29 346	29 498
Sex ratio (per 100 females)	94.9	96.0	96.0	95.9	95.7	95.4	94.9	94.5	94.3	94.4
Age distribution:										
Percentage aged 0-4	9.2	8.3	8.4	8.9	8.5	7.8	6.4	5.3	4.8	4.9
Percentage aged 5-14	17.1	16.7	16.4	15.4	16.0	16.4	15.9	14.2	11.0	9.9
Percentage aged 15-24	17.0	16.7	15.5	15.1	14.8	14.2	15.3	16.4	15.6	13.5
Percentage aged 60 or over	12.2	12.7	13.6	14.6	16.1	17.4	17.0	18.4	21.1	22.5
Percentage aged 65 or over	8.3	8.7	9.3	10.0	10.9	12.0	13.1	12.7	15.3	16.8
Percentage of women aged 15-49	51.4	51.4	49.8	48.3	48.1	46.8	47.1	48.3	49.0	48.7
Median age (years)	29.0	30.0	31.3	32.1	32.8	33.4	34.0	35.2	37.4	38.8
Population density (per sq km)	156	161	167	173	179	184	187	188	189	190

	1950-1955	1955-1960	1960-1965	1965-1970	1970-1975	1975-1980	1980-1985	1985-1990	1990-1995
Population change per year (thousands)	306	313	383	342	324	199	67	50	63
Births per year (thousands)	877	890	963	968	877	728	606	570	559
Deaths per year (thousands)	472	474	501	514	537	546	539	539	596
Population growth rate (percentage)	0.64	0.63	0.75	0.65	0.59	0.36	0.12	0.09	0.11
Crude birth rate (per 1,000 population)	18.3	18.0	18.8	18.3	16.1	13.0	10.7	10.0	9.8
Crude death rate (per 1,000 population)	9.9	9.6	9.8	9.7	9.8	9.8	9.5	9.5	10.4
Total fertility rate (per woman)	2.32	2.35	2.55	2.49	2.28	1.92	1.55	1.35	1.28
Gross reproduction rate (per woman)	1.13	1.14	1.24	1.21	1.10	0.93	0.75	0.65	0.62
Net reproduction rate (per woman)	1.09	1.07	1.16	1.15	1.05	0.88	0.74	0.63	0.61
Infant mortality rate (per 1,000 births)	60	48	40	33	26	18	13	10	8
Life expectancy at birth (years)									
Males	64.3	66.3	67.4	68.2	69.2	70.4	71.5	73.1	74.2
Females	67.8	70.8	72.6	73.9	75.2	76.9	78.0	79.6	80.7
Both sexes combined	66.0	68.5	69.9	71.0	72.1	73.6	74.5	76.2	77.2

B. MEDIUM-VARIANT PROJECTIONS

	1995	2000	2005	2010	2015	2020	2025	2030	2040	2050
Population (thousands)										
Total	57 338	57 298	56 780	55 782	54 448	52 913	51 270	49 533	45 642	41 197
Males	27 840	27 806	27 564	27 087	26 446	25 714	24 928	24 082	22 150	19 951
Females	29 498	29 492	29 216	28 695	28 002	27 199	26 342	25 452	23 492	21 247
Sex ratio (per 100 females)	94.4	94.3	94.3	94.4	94.4	94.5	94.6	94.6	94.3	93.9
Age distribution:										
Percentage aged 0-4	4.9	4.5	4.2	3.9	3.7	3.7	3.8	3.8	3.8	3.8
Percentage aged 5-14	9.9	9.8	9.5	8.9	8.4	7.9	7.7	7.8	8.2	8.2
Percentage aged 15-24	13.5	11.1	10.1	10.0	9.9	9.4	8.9	8.4	8.4	9.0
Percentage aged 60 or over	22.5	24.2	25.5	27.4	29.1	31.4	34.6	37.7	41.5	41.2
Percentage aged 65 or over	16.8	18.2	19.7	20.8	22.6	24.1	26.1	29.1	34.5	34.9
Percentage in school ages 6-11	5.9	5.9	5.6	5.3	4.9	4.6	4.6	4.7	4.9	4.9
Percentage in school ages 12-14	3.1	2.9	3.0	2.8	2.7	2.5	2.4	2.4	2.5	2.6
Percentage in school ages 15-17	3.4	3.0	3.0	3.0	2.8	2.7	2.5	2.4	2.5	2.6
Percentage in school ages 18-23	8.6	6.8	6.1	6.0	6.1	5.7	5.5	5.1	5.1	5.5
Percentage of women aged 15-49	48.7	46.9	45.4	43.8	40.9	38.1	35.2	33.6	32.5	32.2
Median age (years)	38.8	40.6	42.7	44.8	47.0	49.0	50.9	52.2	53.0	53.2
Population density (per sq km)	190	190	188	185	181	176	170	164	152	137

	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2025-2030	2030-2040	2040-2050
Population change per year (thousands)	-8	-104	-200	-267	-307	-329	-347	-389	-445
Births per year (thousands)	517	484	437	405	391	387	381	360	323
Deaths per year (thousands)	595	621	652	679	702	716	728	749	767
Net migration per year (thousands)	70	34	16	8	4	0	0	0	0
Population growth rate (percentage)	- 0.01	- 0.18	- 0.36	- 0.48	- 0.57	- 0.63	- 0.69	- 0.82	- 1.03
Crude birth rate (per 1,000 population)	9.0	8.5	7.8	7.3	7.3	7.4	7.6	7.5	7.4
Crude death rate (per 1,000 population)	10.4	10.9	11.6	12.3	13.1	13.7	14.5	15.7	17.7
Net migration rate (per 1,000 population)	1.2	0.6	0.3	0.1	0.1	0.0	0.0	0.0	0.0
Total fertility rate (per woman)	1.20	1.22	1.26	1.33	1.40	1.47	1.54	1.63	1.66
Gross reproduction rate (per woman)	0.58	0.59	0.61	0.65	0.68	0.71	0.75	0.79	0.81
Net reproduction rate (per woman)	0.57	0.58	0.60	0.64	0.67	0.71	0.74	0.78	0.80
Infant mortality rate (per 1,000 births)	7	7	6	6	6	6	6	5	5
Mortality under age 5 (per 1,000 births)	8	8	8	7	7	7	6	6	6
Life expectancy at birth (years)									
Males	75.0	75.8	76.3	76.8	77.3	77.8	78.2	78.8	79.6
Females	81.2	81.7	82.2	82.7	83.1	83.5	83.9	84.5	85.3
Both sexes combined	78.2	78.8	79.3	79.8	80.2	80.7	81.1	81.7	82.4

Source: United Nations Population Division, *World Population Prospects: The 1998 Revision*.

TABLE A.5 (*continued*)

ITALY

C. HIGH-VARIANT PROJECTIONS

	1995	2000	2005	2010	2015	2020	2025	2030	2040	2050
Population (thousands)										
Total	57 338	57 405	57 201	56 582	55 626	54 490	53 306	52 128	49 651	46 772
Males	27 840	27 861	27 781	27 499	27 053	26 527	25 977	25 418	24 213	22 818
Females	29 498	29 544	29 420	29 083	28 573	27 964	27 329	26 711	25 438	23 954
Age distribution:										
Percentage aged 0-4	4.9	4.7	4.8	4.5	4.3	4.3	4.5	4.7	5.0	5.1
Percentage aged 5-14	9.9	9.7	9.6	9.6	9.5	9.1	8.9	9.1	10.0	10.5
Percentage aged 15-24	13.5	11.1	10.0	9.9	9.9	9.9	9.9	9.4	9.5	10.6
Percentage aged 60 or over	22.5	24.2	25.3	27.0	28.5	30.5	33.3	35.8	38.1	36.3
Percentage aged 65 or over	16.8	18.1	19.6	20.5	22.1	23.4	25.1	27.7	31.7	30.7
Percentage of women aged 15-49	48.7	46.9	45.1	43.2	40.3	37.8	35.3	34.2	33.9	34.9
Median age (years)	38.8	40.5	42.4	44.4	46.3	48.1	49.6	50.2	49.4	48.0

	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2025-2030	2030-2040	2040-2050
Population change per year (thousands)	13	- 41	- 124	- 191	- 227	- 237	- 236	- 248	- 288
Population growth rate (percentage)	0.02	- 0.07	- 0.22	- 0.34	- 0.41	- 0.44	- 0.45	- 0.49	- 0.60
Crude birth rate (per 1,000 population)	9.4	9.5	9.0	8.6	8.6	8.9	9.4	9.9	10.0
Crude death rate (per 1,000 population)	10.4	10.9	11.5	12.1	12.8	13.3	13.8	14.7	16.0
Net migration rate (per 1,000 population)	1.2	0.6	0.3	0.1	0.1	0.0	0.0	0.0	0.0
Total fertility rate (per woman)	1.25	1.38	1.48	1.58	1.68	1.78	1.88	2.01	2.06
Gross reproduction rate (per woman)	0.61	0.67	0.72	0.77	0.81	0.86	0.91	0.97	1.00
Net reproduction rate (per woman)	0.60	0.66	0.71	0.76	0.81	0.85	0.90	0.97	0.99

D. LOW-VARIANT PROJECTIONS

	1995	2000	2005	2010	2015	2020	2025	2030	2040	2050
Population (thousands)										
Total	57 338	57 170	56 494	55 341	53 765	51 904	49 841	47 594	42 508	36 789
Males	27 840	27 740	27 416	26 860	26 095	25 194	24 192	23 083	20 536	17 683
Females	29 498	29 430	29 077	28 481	27 670	26 709	25 649	24 511	21 972	19 106
Age distribution:										
Percentage aged 0-4	4.9	4.3	4.0	3.6	3.3	3.1	3.0	2.9	2.6	2.5
Percentage aged 5-14	9.9	9.8	9.3	8.5	7.9	7.3	6.8	6.5	6.2	5.8
Percentage aged 15-24	13.5	11.1	10.2	10.1	9.8	9.1	8.5	7.9	7.3	7.1
Percentage aged 60 or over	22.5	24.3	25.6	27.6	29.5	32.0	35.6	39.3	44.6	46.2
Percentage aged 65 or over	16.8	18.2	19.8	21.0	22.9	24.5	26.8	30.3	37.0	39.1
Percentage of women aged 15-49	48.7	47.0	45.7	44.1	41.2	38.3	35.3	33.6	31.6	29.7
Median age (years)	38.8	40.7	42.8	45.1	47.4	49.6	51.7	53.6	55.9	57.4

	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2025-2030	2030-2040	2040-2050
Population change per year (thousands)	-34	-135	-230	-315	-372	-413	-449	-509	-572
Population growth rate (percentage)	- 0.06	- 0.24	- 0.41	- 0.58	- 0.71	- 0.81	- 0.92	- 1.13	- 1.45
Crude birth rate (per 1,000 population)	8.6	8.0	7.3	6.5	6.1	5.9	5.7	5.3	4.9
Crude death rate (per 1,000 population)	10.4	10.9	11.7	12.4	13.3	14.1	14.9	16.6	19.3
Net migration rate (per 1,000 population)	1.2	0.6	0.3	0.1	0.1	0.0	0.0	0.0	0.0
Total fertility rate (per woman)	1.14	1.14	1.17	1.17	1.17	1.17	1.17	1.17	1.17
Gross reproduction rate (per woman)	0.55	0.55	0.57	0.57	0.57	0.57	0.57	0.57	0.57
Net reproduction rate (per woman)	0.55	0.55	0.56	0.56	0.56	0.56	0.56	0.56	0.56

E. CONSTANT-VARIANT PROJECTIONS

	1995	2000	2005	2010	2015	2020	2025	2030	2040	2050
Population (thousands)										
Total	57 338	57 470	57 069	56 105	54 697	53 007	51 149	49 146	44 542	39 227

	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2025-2030	2030-2040	2040-2050
Population growth rate (percentage)	0.05	- 0.14	- 0.34	- 0.51	- 0.63	- 0.71	- 0.80	- 0.98	- 1.27
Crude birth rate (per 1,000 population)	9.6	8.9	7.8	7.0	6.7	6.6	6.5	6.1	5.6
Crude death rate (per 1,000 population)	10.4	10.9	11.5	12.3	13.0	13.7	14.5	16.0	18.3

Source: United Nations Population Division, *World Population Prospects: The 1998 Revision*.

TABLE A.6. ITALY, MIGRATION REPLACEMENT SCENARIOS

ITALY

Scenario	I	II	III	IV	V	*VI*
Period	Medium variant	Medium variant with zero migration	Constant total population	Constant age group 15-64	Ratio 15-64/65+ not less than 3.0	*Constant ratio 15-64/65 years or older*
			A. Average annual net migration (thousands)			
1995-2000	70	0	75	203	0	*1 261*
2000-2005	34	0	127	266	0	*1 402*
2005-2010	16	0	193	179	0	*757*
2010-2015	8	0	236	341	404	*1 362*
2015-2020	4	0	255	335	886	*1 146*
2020-2025	0	0	256	456	1 203	*1 886*
2025-2030	0	0	260	613	1 744	*3 267*
2030-2035	0	0	269	581	1 482	*3 892*
2035-2040	0	0	289	507	1 117	*4 132*
2040-2045	0	0	309	268	149	*2 740*
2045-2050	0	0	318	173	32	*2 094*
Grand total 1995-2050	660	0	12 944	19 610	35 088	*119 684*
			B. Total population (thousands)			
1995	57 338	57 338	57 338	57 338	57 338	*57 338*
2000	57 298	56 950	57 338	58 000	56 950	*63 477*
2005	56 780	56 267	57 338	58 767	56 267	*70 487*
2010	55 782	55 200	57 338	58 783	55 200	*74 207*
2015	54 448	53 840	57 338	59 393	55 943	*80 939*
2020	52 913	52 303	57 338	59 902	59 189	*86 764*
2025	51 270	50 679	57 338	61 064	64 383	*96 664*
2030	49 533	48 962	57 338	63 104	72 808	*114 329*
2035	47 671	47 122	57 338	65 066	80 443	*136 391*
2040	45 642	45 116	57 338	66 630	86 463	*160 856*
2045	43 460	42 959	57 338	66 846	87 419	*178 891*
2050	41 197	40 722	57 338	66 395	87 345	*193 518*
			C. Age group 15-64 (thousands)			
1995	39 234	39 234	39 234	39 234	39 234	*39 234*
2000	38 721	38 486	38 762	39 234	38 486	*43 139*
2005	37 781	37 439	38 208	39 234	37 439	*47 661*
2010	37 015	36 630	38 174	39 234	36 630	*50 477*
2015	35 576	35 179	37 715	39 234	36 671	*55 064*
2020	34 061	33 669	37 332	39 234	38 560	*59 072*
2025	32 026	31 659	36 506	39 234	41 401	*65 358*
2030	29 365	29 026	35 101	39 234	45 990	*76 176*
2035	26 773	26 464	33 799	39 234	50 209	*89 650*
2040	24 432	24 147	32 790	39 234	53 706	*104 784*
2045	22 946	22 681	32 675	39 234	54 607	*116 546*
2050	21 875	21 623	32 985	39 234	55 074	*126 808*
			D. Potential support ratio 15-64/65 or older			
1995	4.08	4.08	4.08	4.08	4.08	*4.08*
2000	3.72	3.72	3.74	3.78	3.72	*4.08*
2005	3.37	3.37	3.43	3.50	3.37	*4.08*
2010	3.19	3.19	3.30	3.37	3.19	*4.08*
2015	2.90	2.90	3.06	3.16	3.00	*4.08*
2020	2.67	2.68	2.91	3.02	3.00	*4.08*
2025	2.39	2.40	2.69	2.84	3.00	*4.08*
2030	2.04	2.04	2.37	2.59	3.00	*4.08*
2035	1.76	1.76	2.13	2.39	3.00	*4.08*
2040	1.55	1.55	1.97	2.24	3.00	*4.08*
2045	1.50	1.50	1.96	2.22	3.00	*4.08*
2050	1.52	1.52	2.03	2.25	3.00	*4.08*

TABLE A.6 (*continued*)

ITALY

Scenario	I	II	III	IV	V	*VI*
Period	Medium variant	Medium variant with zero migration	Constant total population	Constant age group 15-64	Ratio 15-64/65+ not less than 3.0	*Constant ratio 15-64/65 years or older*
			E. Age group 65 or older (thousands)			
1995	9 621	9 621	9 621	9 621	9 621	*9 621*
2000	10 412	10 349	10 362	10 386	10 349	*10 578*
2005	11 213	11 113	11 155	11 212	11 113	*11 687*
2010	11 609	11 487	11 578	11 651	11 487	*12 377*
2015	12 286	12 150	12 310	12 417	12 224	*13 502*
2020	12 733	12 586	12 837	12 984	12 853	*14 485*
2025	13 373	13 218	13 586	13 817	13 800	*16 026*
2030	14 415	14 249	14 780	15 167	15 330	*18 679*
2035	15 249	15 074	15 839	16 442	16 736	*21 983*
2040	15 745	15 566	16 661	17 509	17 902	*25 694*
2045	15 303	15 128	16 647	17 690	18 202	*28 578*
2050	14 377	14 211	16 230	17 444	18 358	*31 094*
			F. Percentage in age group 65 or older			
1995	16.8	16.8	16.8	16.8	16.8	*16.8*
2000	18.2	18.2	18.1	17.9	18.2	*16.7*
2005	19.7	19.7	19.5	19.1	19.7	*16.6*
2010	20.8	20.8	20.2	19.8	20.8	*16.7*
2015	22.6	22.6	21.5	20.9	21.9	*16.7*
2020	24.1	24.1	22.4	21.7	21.7	*16.7*
2025	26.1	26.1	23.7	22.6	21.4	*16.6*
2030	29.1	29.1	25.8	24.0	21.1	*16.3*
2035	32.0	32.0	27.6	25.3	20.8	*16.1*
2040	34.5	34.5	29.1	26.3	20.7	*16.0*
2045	35.2	35.2	29.0	26.5	20.8	*16.0*
2050	34.9	34.9	28.3	26.3	21.0	*16.1*
			G. Age group 0-14 (thousands)			
1995	8 483	8 483	8 483	8 483	8 483	*8 483*
2000	8 165	8 116	8 214	8 380	8 116	*9 760*
2005	7 785	7 716	7 976	8 320	7 716	*11 140*
2010	7 157	7 083	7 586	7 898	7 083	*11 353*
2015	6 586	6 512	7 313	7 741	7 048	*12 373*
2020	6 119	6 048	7 169	7 683	7 776	*13 207*
2025	5 871	5 802	7 246	8 013	9 181	*15 280*
2030	5 754	5 687	7 458	8 703	11 488	*19 474*
2035	5 650	5 585	7 700	9 390	13 498	*24 758*
2040	5 466	5 403	7 887	9 887	14 855	*30 379*
2045	5 211	5 150	8 016	9 922	14 610	*33 767*
2050	4 945	4 888	8 124	9 717	13 913	*35 615*
			H. Potential support ratio in 2050, by age at entry into non-working-age population			
Age						
65	1.52	1.52	2.03	2.25	3.00	*4.08*
70	2.08	2.08	2.81	3.11	4.17	*5.83*
75	3.06	3.06	4.13	4.59	6.08	*8.94*
80	5.26	5.26	7.06	7.85	10.18	*15.86*

NOTE: The six scenarios can be described briefly as follows:

I – Corresponds to the medium variant of the official United Nations population projections (*World Population Prospects, 1998 Revision*).
II – This scenario amends the medium variant by assuming no migration after 1995.
III – This scenario keeps the total population figure constant at the highest level that it would reach in the absence of migration after 1995.
IV – This scenario keeps the number of persons aged 15-64 constant at the highest level that it would reach in the absence of migration after 1995.
V – This scenario prevents the ratio of persons aged 15-64 to persons aged 65 and above from falling below 3.0.
VI – This scenario keeps the ratio of persons aged 15-64 and above at the highest level that it would reach in the absence of migration after 1995 This scenario is considered to be demographically unrealistic.

TABLE A.7. JAPAN, *1998 REVISION*

JAPAN

A. ESTIMATES

Indicator	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995
Population (thousands)										
Total	83 625	89 815	94 096	98 881	104 331	111 524	116 807	120 837	123 537	125 472
Males	41 003	44 111	46 176	48 531	51 205	54 880	57 468	59 393	60 658	61 526
Females	42 622	45 704	47 920	50 350	53 126	56 644	59 339	61 444	62 879	63 946
Sex ratio (per 100 females)	96.2	96.5	96.4	96.4	96.4	96.9	96.8	96.7	96.5	96.2
Age distribution:										
Percentage aged 0-4	13.4	10.6	8.5	8.3	8.5	8.9	7.4	6.2	5.3	4.8
Percentage aged 5-14	22.1	23.0	21.7	17.6	15.5	15.4	16.2	15.4	13.1	11.2
Percentage aged 15-24	19.6	19.1	18.9	20.2	19.0	15.4	13.8	14.2	15.2	14.7
Percentage aged 60 or over	7.7	8.1	8.9	9.6	10.7	11.7	12.9	14.8	17.4	20.5
Percentage aged 65 or over	4.9	5.3	5.7	6.2	7.1	7.9	9.0	10.3	12.0	14.6
Percentage of women aged 15-49	50.2	51.2	53.0	55.6	55.9	53.6	51.6	50.1	50.0	48.5
Median age (years)	22.3	23.6	25.5	27.3	29.0	30.4	32.6	35.2	37.4	39.7
Population density (per sq km)	221	238	249	262	276	295	309	320	327	332

	1950-1955	1955-1960	1960-1965	1965-1970	1970-1975	1975-1980	1980-1985	1985-1990	1990-1995
Population change per year (thousands)	1 238	856	957	1 090	1 439	1 057	806	540	387
Births per year (thousands)	2 052	1 664	1 662	1 805	2 073	1 733	1 509	1 321	1 213
Deaths per year (thousands)	812	715	702	697	712	697	730	773	863
Population growth rate (percentage)	1.43	0.93	0.99	1.07	1.33	0.93	0.68	0.44	0.31
Crude birth rate (per 1,000 population)	23.7	18.1	17.2	17.8	19.2	15.2	12.7	10.8	9.7
Crude death rate (per 1,000 population)	9.4	7.8	7.3	6.9	6.6	6.1	6.1	6.3	6.9
Total fertility rate (per woman)	2.75	2.08	2.02	2.00	2.07	1.81	1.76	1.66	1.49
Gross reproduction rate (per woman)	1.34	1.01	0.98	0.97	1.01	0.88	0.86	0.81	0.73
Net reproduction rate (per woman)	1.19	0.95	0.94	0.97	0.98	0.87	0.85	0.80	0.72
Infant mortality rate (per 1,000 births)	51	37	25	16	12	9	7	5	4
Life expectancy at birth (years)									
Males	62.1	64.6	66.5	68.5	70.6	72.8	74.2	75.4	76.4
Females	65.9	69.1	71.6	73.9	76.2	78.2	79.7	81.2	82.4
Both sexes combined	63.9	66.8	69.0	71.1	73.3	75.5	76.9	78.3	79.5

B. MEDIUM-VARIANT PROJECTIONS

	1995	2000	2005	2010	2015	2020	2025	2030	2040	2050
Population (thousands)										
Total	125 472	126 714	127 457	127 315	126 070	123 893	121 150	118 145	111 691	104 921
Males	61 526	62 093	62 423	62 303	61 619	60 471	59 058	57 541	54 395	51 162
Females	63 946	64 621	65 034	65 013	64 451	63 422	62 092	60 604	57 296	53 759
Sex ratio (per 100 females)	96.2	96.1	96.0	95.8	95.6	95.3	95.1	94.9	94.9	95.2
Age distribution:										
Percentage aged 0-4	4.8	4.9	5.0	4.9	4.6	4.3	4.3	4.5	4.6	4.4
Percentage aged 5-14	11.2	9.9	9.6	9.9	10.0	9.6	9.2	9.0	9.4	9.4
Percentage aged 15-24	14.7	12.6	11.0	9.8	9.7	10.2	10.4	10.1	9.5	10.0
Percentage aged 60 or over	20.5	23.1	25.8	29.3	31.2	32.1	32.9	34.2	37.4	37.6
Percentage aged 65 or over	14.6	17.1	19.2	21.5	24.6	26.2	26.7	27.3	30.3	31.8
Percentage in school ages 6-11	6.5	5.8	5.8	6.0	6.0	5.7	5.4	5.3	5.7	5.6
Percentage in school ages 12-14	3.7	3.2	2.8	2.9	3.0	3.0	2.9	2.7	2.8	2.9
Percentage in school ages 15-17	3.9	3.4	3.0	2.8	3.0	3.1	3.0	2.9	2.8	3.0
Percentage in school ages 18-23	9.2	7.7	6.7	5.9	5.7	6.1	6.3	6.1	5.7	6.0
Percentage of women aged 15-49	48.5	45.3	43.0	41.5	40.3	39.1	37.0	35.6	34.8	35.6
Median age (years)	39.7	41.2	42.5	43.8	45.2	46.9	48.4	49.3	49.5	49.0
Population density (per sq km)	332	335	337	337	334	328	321	313	296	278

	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2025-2030	2030-2040	2040-2050
Population change per year (thousands)	248	149	-28	-249	-435	-549	-601	-645	-677
Births per year (thousands)	1 254	1 288	1 246	1 154	1 080	1 054	1 061	1 041	946
Deaths per year (thousands)	1 005	1 139	1 274	1 403	1 515	1 603	1 662	1 686	1 623
Net migration per year (thousands)	0	0	0	0	0	0	0	0	0
Population growth rate (percentage)	0.20	0.12	- 0.02	- 0.20	- 0.35	- 0.45	- 0.50	- 0.56	- 0.63
Crude birth rate (per 1,000 population)	9.9	10.1	9.8	9.1	8.6	8.6	8.9	9.1	8.7
Crude death rate (per 1,000 population)	8.0	9.0	10.0	11.1	12.1	13.1	13.9	14.7	15.0
Net migration rate (per 1,000 population)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total fertility rate (per woman)	1.43	1.47	1.54	1.61	1.68	1.73	1.75	1.75	1.75
Gross reproduction rate (per woman)	0.70	0.71	0.75	0.78	0.82	0.84	0.85	0.85	0.85
Net reproduction rate (per woman)	0.69	0.71	0.74	0.77	0.81	0.84	0.85	0.85	0.85
Infant mortality rate (per 1,000 births)	4	4	4	4	4	4	4	4	4
Mortality under age 5 (per 1,000 births)	6	6	5	5	5	5	5	5	5
Life expectancy at birth (years)									
Males	76.8	77.2	77.6	78.0	78.4	78.8	79.2	79.8	80.6
Females	82.9	83.3	83.7	84.1	84.5	84.9	85.3	85.9	86.7
Both sexes combined	80.0	80.3	80.7	81.1	81.5	81.9	82.3	82.8	83.6

Source: United Nations Population Division, *World Population Prospects: The 1998 Revision.*

TABLE A.7 (*continued*)

JAPAN

C. HIGH-VARIANT PROJECTIONS

	1995	2000	2005	2010	2015	2020	2025	2030	2040	2050
Population (thousands)										
Total	125 472	126 954	128 243	128 727	128 143	126 675	124 832	123 157	120 207	117 119
Males	61 526	62 216	62 827	63 028	62 683	61 899	60 947	60 112	58 763	57 416
Females	63 946	64 738	65 417	65 700	65 460	64 777	63 885	63 045	61 444	59 703
Age distribution:										
Percentage aged 0-4	4.8	5.1	5.4	5.3	5.0	4.8	4.9	5.4	5.7	5.5
Percentage aged 5-14	11.2	9.9	9.7	10.4	10.7	10.4	10.0	9.9	11.3	11.5
Percentage aged 15-24	14.7	12.6	10.9	9.7	9.7	10.6	11.0	10.7	10.2	11.6
Percentage aged 60 or over	20.5	23.1	25.7	29.0	30.7	31.4	32.0	32.8	34.7	33.7
Percentage aged 65 or over	14.6	17.0	19.1	21.3	24.2	25.6	25.9	26.2	28.1	28.5
Percentage of women aged 15-49	48.5	45.3	42.8	41.1	39.9	38.8	37.0	35.8	35.4	37.3
Median age (years)	39.7	41.1	42.2	43.4	44.6	46.2	47.3	47.6	45.9	44.8

	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2025-2030	2030-2040	2040-2050
Population change per year (thousands)	296	258	97	- 117	- 294	- 369	- 335	- 295	- 309
Population growth rate (percentage)	0.24	0.20	0.08	- 0.09	- 0.23	- 0.29	- 0.27	- 0.24	- 0.26
Crude birth rate (per 1,000 population)	10.3	11.0	10.7	10.0	9.6	9.8	10.7	11.5	11.1
Crude death rate (per 1,000 population)	8.0	8.9	9.9	10.9	11.9	12.8	13.4	13.9	13.7
Net migration rate (per 1,000 population)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total fertility rate (per woman)	1.49	1.59	1.69	1.79	1.89	1.99	2.09	2.15	2.15
Gross reproduction rate (per woman)	0.72	0.77	0.82	0.87	0.92	0.97	1.02	1.05	1.05
Net reproduction rate (per woman)	0.72	0.77	0.81	0.86	0.91	0.96	1.01	1.04	1.04

D. LOW-VARIANT PROJECTIONS

	1995	2000	2005	2010	2015	2020	2025	2030	2040	2050
Population (thousands)										
Total	125 472	126 474	126 583	125 655	123 497	120 265	116 290	111 858	102 145	91 916
Males	61 526	61 970	61 974	61 451	60 298	58 609	56 564	54 315	49 499	44 495
Females	63 946	64 504	64 609	64 204	63 199	61 656	59 727	57 543	52 646	47 421
Age distribution:										
Percentage aged 0-4	4.8	4.7	4.6	4.3	3.9	3.6	3.5	3.4	3.3	3.1
Percentage aged 5-14	11.2	9.9	9.5	9.4	9.0	8.5	7.9	7.4	7.4	7.1
Percentage aged 15-24	14.7	12.7	11.1	9.9	9.7	9.8	9.6	9.1	8.1	8.2
Percentage aged 60 or over	20.5	23.2	26.0	29.7	31.9	33.0	34.3	36.1	40.9	42.9
Percentage aged 65 or over	14.6	17.1	19.3	21.8	25.1	27.0	27.8	28.8	33.1	36.3
Percentage of women aged 15-49	48.5	45.4	43.3	42.0	40.9	39.5	37.1	35.3	33.4	32.5
Median age (years)	39.7	41.3	42.8	44.3	45.9	47.9	49.8	51.3	53.3	54.3

	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2025-2030	2030-2040	2040-2050
Population change per year (thousands)	200	22	-186	-432	-646	-795	-886	-971	- 1 023
Population growth rate (percentage)	0.16	0.02	- 0.15	- 0.35	- 0.53	- 0.67	- 0.78	- 0.91	- 1.06
Crude birth rate (per 1,000 population)	9.6	9.2	8.6	7.8	7.1	6.8	6.8	6.6	6.1
Crude death rate (per 1,000 population)	8.0	9.0	10.1	11.3	12.4	13.5	14.5	15.7	16.7
Net migration rate (per 1,000 population)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total fertility rate (per woman)	1.38	1.32	1.34	1.35	1.35	1.35	1.35	1.35	1.35
Gross reproduction rate (per woman)	0.67	0.64	0.65	0.66	0.66	0.66	0.66	0.66	0.66
Net reproduction rate (per woman)	0.66	0.64	0.65	0.65	0.65	0.65	0.65	0.65	0.65

E. CONSTANT-VARIANT PROJECTIONS

	1995	2000	2005	2010	2015	2020	2025	2030	2040	2050
Population (thousands)										
Total	125 472	126 998	127 871	127 568	125 930	123 193	119 804	116 124	108 043	99 227

	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2025-2030	2030-2040	2040-2050
Population growth rate (percentage)	0.24	0.14	- 0.05	- 0.26	- 0.44	- 0.56	- 0.62	- 0.72	- 0.85
Crude birth rate (per 1,000 population)	10.4	10.3	9.5	8.5	7.8	7.6	7.8	7.8	7.1
Crude death rate (per 1,000 population)	8.0	8.9	10.0	11.1	12.2	13.2	14.1	15.0	15.6

Source: United Nations Population Division, *World Population Prospects: The 1998 Revision.*

TABLE A.8. JAPAN, REPLACEMENT MIGRATION SCENARIOS

JAPAN

Scenario	I	II	III	IV	V	*VI*
Period	Medium variant	Medium variant with zero migration	Constant total population	Constant age group 15-64	Ratio 15-64/65+ not less than 3.0	*Constant ratio 15-64/65 years or older*
			A. Average annual net migration (thousands)			
1995-2000	0	0	0	231	0	*5 990*
2000-2005	0	0	0	517	0	*5 674*
2005-2010	0	0	27	818	341	*6 224*
2010-2015	0	0	234	1 056	4 871	*7 831*
2015-2020	0	0	387	483	2 094	*3 854*
2020-2025	0	0	459	200	204	*2 335*
2025-2030	0	0	473	407	303	*5 895*
2030-2035	0	0	472	707	1 151	*12 766*
2035-2040	0	0	472	1 070	3 255	*20 543*
2040-2045	0	0	464	745	3 162	*20 776*
2045-2050	0	0	440	465	3 588	*18 811*
Grand total 1995-2050	0	0	17 141	33 487	94 837	*553 495*
			B. Total population (thousands)			
1995	125 472	125 472	125 472	125 472	125 472	*125 472*
2000	126 714	126 714	126 714	127 923	126 714	*158 061*
2005	127 457	127 457	127 457	131 475	127 457	*191 169*
2010	127 315	127 315	127 457	135 956	129 104	*228 535*
2015	126 070	126 070	127 457	140 936	153 682	*275 471*
2020	123 893	123 893	127 457	142 402	165 212	*303 440*
2025	121 150	121 150	127 457	141 877	166 849	*323 376*
2030	118 145	118 145	127 457	142 094	168 149	*361 530*
2035	114 987	114 987	127 457	143 811	173 472	*437 628*
2040	111 691	111 691	127 457	147 553	190 219	*559 848*
2045	108 304	108 304	127 457	149 843	207 956	*691 148*
2050	104 921	104 921	127 457	150 697	229 021	*817 965*
			C. Age group 15-64 (thousands)			
1995	87 188	87 188	87 188	87 188	87 188	*87 188*
2000	86 335	86 335	86 335	87 188	86 335	*108 454*
2005	84 355	84 355	84 355	87 188	84 355	*129 299*
2010	81 099	81 099	81 199	87 188	82 357	*152 670*
2015	76 708	76 708	77 681	87 188	96 067	*182 833*
2020	74 101	74 101	76 587	87 188	102 837	*202 426*
2025	72 418	72 418	76 803	87 188	104 213	*217 547*
2030	70 018	70 018	76 509	87 188	105 485	*243 694*
2035	66 671	66 671	75 432	87 188	109 112	*292 648*
2040	62 250	62 250	73 410	87 188	118 822	*369 375*
2045	59 159	59 159	72 729	87 188	128 831	*452 377*
2050	57 087	57 087	72 908	87 188	140 816	*535 088*
			D. Potential support ratio 15-64/65 or older			
1995	4.77	4.77	4.77	4.77	4.75	*4.77*
2000	3.99	3.99	3.99	4.03	3.99	*4.77*
2005	3.45	3.45	3.45	3.54	3.45	*4.77*
2010	2.96	2.96	2.96	3.14	3.00	*4.77*
2015	2.47	2.47	2.50	2.75	3.00	*4.77*
2020	2.28	2.28	2.35	2.61	3.00	*4.77*
2025	2.24	2.24	2.35	2.59	3.00	*4.77*
2030	2.17	2.17	2.34	2.57	3.00	*4.77*
2035	2.05	2.05	2.27	2.49	3.00	*4.77*
2040	1.84	1.84	2.11	2.33	3.00	*4.77*
2045	1.74	1.74	2.06	2.23	3.00	*4.77*
2050	1.71	1.71	2.07	2.19	3.00	*4.77*

TABLE A.8 (*continued*)

JAPAN

Scenario	I	II	III	IV	V	*VI*
Period	Medium variant	Medium variant with zero migration	Constant total population	Constant age group 15-64	Ratio 15-64/65+ not less than 3.0	*Constant ratio 15-64/65 years or older*
			E. Age group 65 or older (thousands)			
1995	18 264	18 264	18 264	18 264	18 264	*18 264*
2000	21 614	21 614	21 614	21 657	21 614	*22 719*
2005	24 479	24 479	24 479	24 634	24 479	*27 086*
2010	27 389	27 389	27 394	27 751	27 452	*31 982*
2015	31 029	31 029	31 080	31 699	32 022	*38 300*
2020	32 491	32 491	32 634	33 443	34 279	*42 405*
2025	32 383	32 383	32 660	33 624	34 738	*45 572*
2030	32 239	32 239	32 686	33 920	35 162	*51 050*
2035	32 534	32 534	33 194	34 959	36 371	*61 305*
2040	33 809	33 809	34 751	37 405	39 607	*77 378*
2045	33 966	33 966	35 311	39 013	42 944	*94 765*
2050	33 323	33 323	35 253	39 890	46 939	*112 092*
			F. Percentage in age group 65 or older			
1995	14.6	14.6	14.6	14.6	14.6	*14.6*
2000	17.1	17.1	17.1	16.9	17.1	*14.4*
2005	19.2	19.2	19.2	18.7	19.2	*14.2*
2010	21.5	21.5	21.5	20.4	21.3	*14.0*
2015	24.6	24.6	24.4	22.5	20.8	*13.9*
2020	26.2	26.2	25.6	23.5	20.7	*14.0*
2025	26.7	26.7	25.6	23.7	20.8	*14.1*
2030	27.3	27.3	25.6	23.9	20.9	*14.1*
2035	28.3	28.3	26.0	24.3	21.0	*14.0*
2040	30.3	30.3	27.3	25.4	20.8	*13.8*
2045	31.4	31.4	27.7	26.0	20.7	*13.7*
2050	31.8	31.8	27.7	26.5	20.5	*13.7*
			G. Age group 0-14 (thousands)			
1995	20 019	20 019	20 019	20 019	20 019	*20 019*
2000	18 765	18 765	18 765	19 078	18 765	*26 888*
2005	18 623	18 623	18 623	19 652	18 623	*34 784*
2010	18 827	18 827	18 864	21 016	19 295	*43 883*
2015	18 332	18 332	18 697	22 048	25 593	*54 338*
2020	17 300	17 300	18 236	21 771	28 096	*58 609*
2025	16 349	16 349	17 994	21 065	27 897	*60 256*
2030	15 888	15 888	18 262	20 986	27 503	*66 786*
2035	15 781	15 781	18 831	21 665	27 989	*83 675*
2040	15 632	15 632	19 296	22 960	31 790	*113 096*
2045	15 179	15 179	19 417	23 642	36 181	*144 006*
2050	14 511	14 511	19 297	23 619	41 266	*170 785*
			H. Potential support ratio in 2050, by age at entry into non-working-age population			
Age						
65	1.71	1.71	2.07	2.19	3.00	*4.77*
70	2.40	2.40	2.89	3.10	4.41	*7.04*
75	3.64	3.64	4.36	4.77	6.89	*11.40*
80	6.48	6.48	7.68	8.50	12.20	*21.49*

NOTE: The six scenarios can be described briefly as follows:

I – Corresponds to the medium variant of the official United Nations population projections (*World Population Prospects, 1998 Revision*).
II – This scenario amends the medium variant by assuming no migration after 1995.
III – This scenario keeps the total population figure constant at the highest level that it would reach in the absence of migration after 1995.
IV – This scenario keeps the number of persons aged 15-64 constant at the highest level that it would reach in the absence of migration after 1995.
V – This scenario prevents the ratio of persons aged 15-64 to persons aged 65 and above from falling below 3.0.
VI – This scenario keeps the ratio of persons aged 15-64 and above at the highest level that it would reach in the absence of migration after 1995. This scenario is considered to be demographically unrealistic.

TABLE A.9. REPUBLIC OF KOREA, *1998 REVISION*

REPUBLIC OF KOREA

A. ESTIMATES

Indicator	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995
Population (thousands)										
Total	20 357	21 422	25 003	28 530	31 923	35 281	38 124	40 806	42 869	44 949
Males	10 285	10 497	12 403	14 273	16 057	17 775	19 259	20 576	21 568	22 646
Females	10 072	10 925	12 601	14 256	15 865	17 506	18 865	20 230	21 301	22 303
Sex ratio (per 100 females)	102.1	96.1	98.4	100.1	101.2	101.5	102.1	101.7	101.3	101.5
Age distribution:										
Percentage aged 0-4	15.7	15.6	18.6	16.5	13.7	12.7	11.3	9.1	7.7	7.7
Percentage aged 5-14	26.0	23.8	23.3	26.8	28.3	25.1	22.7	20.9	18.2	15.8
Percentage aged 15-24	18.6	20.6	18.8	17.2	17.8	21.3	23.0	21.1	20.4	18.7
Percentage aged 60 or over	5.4	5.6	5.3	5.1	5.4	5.8	6.0	6.8	7.7	8.9
Percentage aged 65 or over	3.0	3.7	3.3	3.3	3.3	3.6	3.8	4.3	5.0	5.6
Percentage of women aged 15-49	46.0	49.2	47.0	45.7	46.6	49.9	52.9	54.9	56.9	57.7
Median age (years)	19.2	19.8	19.2	18.7	19.0	19.9	21.8	24.5	26.9	29.2
Population density (per sq km)	206	216	253	288	322	356	385	412	433	454

	1950-1955	1955-1960	1960-1965	1965-1970	1970-1975	1975-1980	1980-1985	1985-1990	1990-1995
Population change per year (thousands)	213	716	705	679	672	569	536	413	416
Births per year (thousands)	773	1 065	1 059	963	969	877	840	690	700
Deaths per year (thousands)	668	345	335	314	297	259	258	256	274
Population growth rate (percentage)	1.02	3.09	2.64	2.25	2.00	1.55	1.36	0.99	0.95
Crude birth rate (per 1,000 population)	37.0	45.9	39.6	31.9	28.8	23.9	21.3	16.5	15.9
Crude death rate (per 1,000 population)	32.0	14.9	12.5	10.4	8.9	7.1	6.5	6.1	6.3
Total fertility rate (per woman)	5.40	6.33	5.63	4.71	4.28	2.92	2.50	1.80	1.70
Gross reproduction rate (per woman)	2.51	2.95	2.62	2.19	1.99	1.36	1.17	0.84	0.79
Net reproduction rate (per woman)	1.79	2.28	2.11	1.83	1.73	1.26	1.10	0.80	0.77
Infant mortality rate (per 1,000 births)	115	100	70	58	38	30	23	14	11
Life expectancy at birth (years)									
Males	46.0	51.1	53.6	56.0	59.3	61.3	63.5	65.8	67.3
Females	49.0	54.2	56.9	59.4	66.1	68.4	71.1	73.7	74.9
Both sexes combined	47.5	52.6	55.2	57.6	62.6	64.8	65.9	69.6	70.9

B. MEDIUM-VARIANT PROJECTIONS

	1995	2000	2005	2010	2015	2020	2025	2030	2040	2050
Population (thousands)										
Total	44 949	46 844	48 548	49 976	51 051	51 893	52 533	52 898	52 700	51 275
Males	22 646	23 624	24 486	25 183	25 679	26 053	26 312	26 438	26 250	25 496
Females	22 303	23 220	24 061	24 793	25 372	25 840	26 221	26 460	26 450	25 779
Sex ratio (per 100 females)	101.5	101.7	101.8	101.6	101.2	100.8	100.3	99.9	99.2	98.9
Age distribution:										
Percentage aged 0-4	7.7	7.2	6.9	6.4	6.0	5.7	5.6	5.5	5.3	5.2
Percentage aged 5-14	15.8	14.3	14.0	13.3	12.7	12.0	11.4	11.2	11.0	10.8
Percentage aged 15-24	18.7	16.5	14.5	13.3	13.2	12.8	12.3	11.8	11.2	11.3
Percentage aged 60 or over	8.9	10.6	12.0	13.5	15.6	19.0	22.3	25.1	29.4	30.4
Percentage aged 65 or over	5.6	6.7	8.1	9.3	10.6	12.3	15.3	18.1	22.8	24.7
Percentage in school ages 6-11	9.1	8.6	8.4	8.0	7.6	7.1	6.8	6.7	6.6	6.4
Percentage in school ages 12-14	5.2	4.2	4.2	4.0	3.9	3.7	3.5	3.4	3.3	3.3
Percentage in school ages 15-17	5.2	4.8	3.9	4.1	3.9	3.8	3.6	3.4	3.3	3.3
Percentage in school ages 18-23	11.5	9.9	8.9	7.8	8.0	7.7	7.5	7.1	6.7	6.8
Percentage of women aged 15-49	57.7	57.7	55.8	52.4	49.0	46.2	43.2	41.3	39.4	39.1
Median age (years)	29.2	31.4	33.7	36.0	38.0	39.7	41.3	42.3	43.6	44.4
Population density (per sq km)	454	473	490	505	516	524	531	534	532	518

	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2025-2030	2030-2040	2040-2050
Population change per year (thousands)	379	341	286	215	168	128	73	-20	-143
Births per year (thousands)	685	673	650	617	599	593	588	572	544
Deaths per year (thousands)	286	312	344	382	421	465	515	592	687
Net migration per year (thousands)	-20	-20	-20	-20	-10	0	0	0	0
Population growth rate (percentage)	0.83	0.72	0.58	0.43	0.33	0.25	0.14	- 0.04	- 0.27
Crude birth rate (per 1,000 population)	14.9	14.1	13.2	12.2	11.6	11.4	11.2	10.8	10.5
Crude death rate (per 1,000 population)	6.2	6.5	7.0	7.6	8.2	8.9	9.8	11.2	13.2
Net migration rate (per 1,000 population)	- 0.4	- 0.4	- 0.4	- 0.4	- 0.2	0.0	0.0	0.0	0.0
Total fertility rate (per woman)	1.65	1.69	1.76	1.83	1.89	1.90	1.90	1.90	1.90
Gross reproduction rate (per woman)	0.77	0.79	0.84	0.88	0.91	0.91	0.91	0.91	0.91
Net reproduction rate (per woman)	0.75	0.78	0.82	0.86	0.89	0.90	0.90	0.90	0.90
Infant mortality rate (per 1,000 births)	10	9	9	8	7	7	6	6	6
Mortality under age 5 (per 1,000 births)	13	12	11	10	9	8	7	7	7
Life expectancy at birth (years)									
Males	68.8	70.0	71.0	72.0	73.0	73.8	74.6	75.7	76.6
Females	76.0	77.0	78.0	78.8	79.6	80.4	80.9	81.7	82.6
Both sexes combined	72.4	73.5	74.5	75.4	76.3	77.1	77.8	78.7	79.6

Source: United Nations Population Division, *World Population Prospects: The 1998 Revision.*

TABLE A.9 (*continued*)

REPUBLIC OF KOREA

C. HIGH-VARIANT PROJECTIONS

	1995	2000	2005	2010	2015	2020	2025	2030	2040	2050
Population (thousands)										
Total	44 949	46 988	48 978	50 725	52 143	53 380	54 620	55 777	57 430	58 114
Males	22 646	23 701	24 715	25 579	26 253	26 832	27 402	27 940	28 713	29 053
Females	22 303	23 287	24 263	25 147	25 890	26 548	27 218	27 837	28 716	29 061
Age distribution:										
Percentage aged 0-4	7.7	7.5	7.4	7.0	6.5	6.3	6.5	6.7	6.5	6.5
Percentage aged 5-14	15.8	14.2	14.2	14.0	13.6	12.9	12.4	12.4	13.0	12.9
Percentage aged 15-24	18.7	16.4	14.3	13.1	13.2	13.2	13.0	12.4	12.0	12.9
Percentage aged 60 or over	8.9	10.5	11.9	13.3	15.2	18.5	21.4	23.8	27.0	26.8
Percentage aged 65 or over	5.6	6.7	8.0	9.1	10.3	11.9	14.7	17.1	20.9	21.8
Percentage of women aged 15-49	57.7	57.6	55.3	51.6	48.3	45.7	42.9	41.1	39.8	40.7
Median age (years)	29.2	31.4	33.5	35.5	37.3	38.8	39.9	40.0	40.2	40.1

	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2025-2030	2030-2040	2040-2050
Population change per year (thousands)	408	398	350	284	247	248	231	165	68
Population growth rate (percentage)	0.89	0.83	0.70	0.55	0.47	0.46	0.42	0.29	0.12
Crude birth rate (per 1,000 population)	15.5	15.2	14.3	13.3	12.9	13.2	13.5	13.4	13.1
Crude death rate (per 1,000 population)	6.2	6.5	6.9	7.4	8.0	8.6	9.4	10.5	11.9
Net migration rate (per 1,000 population)	- 0.4	- 0.4	- 0.4	- 0.4	- 0.2	0.0	0.0	0.0	0.0
Total fertility rate (per woman)	1.72	1.83	1.93	2.03	2.13	2.23	2.28	2.30	2.30
Gross reproduction rate (per woman)	0.80	0.86	0.92	0.98	1.02	1.07	1.10	1.11	1.11
Net reproduction rate (per woman)	0.78	0.84	0.90	0.96	1.01	1.06	1.08	1.09	1.09

D. LOW-VARIANT PROJECTIONS

	1995	2000	2005	2010	2015	2020	2025	2030	2040	2050
Population (thousands)										
Total	44 949	46 700	48 039	49 000	49 532	49 750	49 704	49 287	47 277	43 855
Males	22 646	23 548	24 216	24 668	24 882	24 932	24 834	24 555	23 426	21 636
Females	22 303	23 153	23 823	24 332	24 650	24 818	24 870	24 733	23 852	22 219
Age distribution:										
Percentage aged 0-4	7.7	6.9	6.2	5.6	5.1	4.7	4.5	4.3	3.9	3.8
Percentage aged 5-14	15.8	14.3	13.8	12.6	11.5	10.5	9.7	9.3	8.7	8.2
Percentage aged 15-24	18.7	16.5	14.6	13.5	13.3	12.3	11.4	10.6	9.7	9.4
Percentage aged 60 or over	8.9	10.6	12.1	13.8	16.0	19.8	23.5	26.9	32.8	35.5
Percentage aged 65 or over	5.6	6.8	8.2	9.5	10.9	12.8	16.1	19.4	25.4	28.9
Percentage of women aged 15-49	57.7	57.9	56.3	53.3	50.2	47.1	43.7	41.2	38.1	36.0
Median age (years)	29.2	31.5	34.0	36.5	39.0	41.2	43.2	45.1	47.7	49.9

	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2025-2030	2030-2040	2040-2050
Population change per year (thousands)	350	268	192	106	44	-9	-83	-201	-342
Population growth rate (percentage)	0.77	0.57	0.40	0.22	0.09	- 0.02	- 0.17	- 0.42	- 0.75
Crude birth rate (per 1,000 population)	14.3	12.6	11.4	10.3	9.5	9.1	8.7	8.0	7.5
Crude death rate (per 1,000 population)	6.2	6.6	7.1	7.7	8.4	9.3	10.4	12.2	15.0
Net migration rate (per 1,000 population)	- 0.4	- 0.4	- 0.4	- 0.4	- 0.2	0.0	0.0	0.0	0.0
Total fertility rate (per woman)	1.58	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Gross reproduction rate (per woman)	0.74	0.71	0.71	0.72	0.72	0.72	0.72	0.72	0.72
Net reproduction rate (per woman)	0.72	0.69	0.70	0.71	0.71	0.71	0.71	0.71	0.71

E. CONSTANT-VARIANT PROJECTIONS

	1995	2000	2005	2010	2015	2020	2025	2030	2040	2050
Population (thousands)										
Total	44 949	46 936	48 660	49 977	50 835	51 379	51 730	51 802	50 829	48 406

	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2025-2030	2030-2040	2040-2050
Population growth rate (percentage)	0.87	0.72	0.53	0.34	0.21	0.14	0.03	- 0.19	- 0.49
Crude birth rate (per 1,000 population)	15.3	14.2	12.7	11.4	10.5	10.4	10.2	9.6	8.9
Crude death rate (per 1,000 population)	6.2	6.5	7.0	7.6	8.2	9.0	9.9	11.5	13.8

Source: United Nations Population Division, *World Population Prospects: The 1998 Revision.*

TABLE A.10. REPUBLIC OF KOREA, REPLACEMENT MIGRATION SCENARIOS

REPUBLIC OF KOREA

Scenario	I	II	III	IV	V	*VI*
Period	Medium variant	Medium variant with zero migration	Constant total population	Constant age group 15-64	Ratio 15-64/65+ not less than 3.0	*Constant ratio 15-64/65 years or older*
			A. Average annual net migration (thousands)			
1995-2000	-20	0	0	0	0	*4 156*
2000-2005	-20	0	0	0	0	*7 278*
2005-2010	-20	0	0	0	0	*8 378*
2010-2015	-20	0	0	0	0	*10 678*
2015-2020	-10	0	0	0	0	*16 470*
2020-2025	0	0	0	207	0	*32 950*
2025-2030	0	0	0	269	0	*56 296*
2030-2035	0	0	0	268	0	*98 662*
2035-2040	0	0	53	286	1 277	*163 817*
2040-2045	0	0	109	141	688	*250 241*
2045-2050	0	0	140	114	353	*380 860*
Grand total 1995-2050	-450	0	1 509	6 426	11 595	*5 148 928*
			B. Total population (thousands)			
1995	44 949	44 949	44 949	44 949	44 949	*44 949*
2000	46 844	46 946	46 946	46 946	46 946	*68 768*
2005	48 548	48 755	48 755	48 755	48 755	*110 750*
2010	49 976	50 291	50 291	50 291	50 291	*161 469*
2015	51 051	51 474	51 474	51 474	51 474	*227 364*
2020	51 893	52 375	52 375	52 375	52 375	*328 110*
2025	52 533	53 020	53 020	54 119	53 020	*522 908*
2030	52 898	53 389	53 389	56 034	53 389	*856 241*
2035	52 979	53 470	53 470	57 776	53 470	*1 439 406*
2040	52 700	53 189	53 470	59 345	59 982	*2 412 051*
2045	52 097	52 580	53 470	59 910	63 752	*3 915 529*
2050	51 275	51 751	53 470	60 125	65 736	*6 233 275*
			C. Age group 15-64 (thousands)			
1995	31 882	31 882	31 882	31 882	31 882	*31 882*
2000	33 623	33 696	33 696	33 696	33 696	*48 998*
2005	34 496	34 644	34 644	34 644	34 644	*77 984*
2010	35 455	35 678	35 678	35 678	35 678	*113 307*
2015	36 106	36 405	36 405	36 405	36 405	*159 555*
2020	36 314	36 649	36 649	36 649	36 649	*230 307*
2025	35 557	35 886	35 886	36 649	35 886	*365 720*
2030	34 506	34 827	34 827	36 649	34 827	*595 824*
2035	33 379	33 689	33 689	36 649	33 689	*997 406*
2040	32 083	32 383	32 578	36 649	37 101	*1 667 666*
2045	31 205	31 495	32 109	36 649	39 156	*2 707 304*
2050	30 401	30 685	31 867	36 649	40 270	*4 319 740*
			D. Potential support ratio 15-64/65 or older			
1995	12.62	12.62	12.62	12.62	12.62	*12.62*
2000	10.67	10.67	10.67	10.67	10.67	*12.62*
2005	8.77	8.77	8.77	8.77	8.77	*12.62*
2010	7.64	7.64	7.64	7.64	7.64	*12.62*
2015	6.70	6.70	6.70	6.70	6.70	*12.62*
2020	5.70	5.70	5.70	5.70	5.70	*12.62*
2025	4.43	4.43	4.43	4.51	4.34	*12.62*
2030	3.61	3.61	3.61	3.76	3.61	*12.62*
2035	3.07	3.07	3.07	3.29	3.07	*12.62*
2040	2.67	2.67	2.68	2.95	3.00	*12.62*
2045	2.50	2.50	2.54	2.83	3.00	*12.62*
2050	2.40	2.40	2.48	2.76	3.00	*12.62*

TABLE A.10. (*continued*)

REPUBLIC OF KOREA

Scenario	I	II	III	IV	V	*VI*
Period	Medium variant	Medium variant with zero migration	Constant total population	Constant age group 15-64	Ratio 15-64/65+ not less than 3.0	*Constant ratio 15-64/65 years or older*
			E. Age group 65 or older (thousands)			
1995	2 527	2 527	2 527	2 527	2 527	*2 527*
2000	3 152	3 159	3 159	3 159	3 159	*3 884*
2005	3 934	3 951	3 951	3 951	3 951	*6 182*
2010	4 639	4 668	4 668	4 668	4 668	*8 982*
2015	5 387	5 432	5 432	5 432	5 432	*12 648*
2020	6 366	6 426	6 426	6 426	6 426	*18 256*
2025	8 020	8 094	8 094	8 131	8 094	*28 990*
2030	9 565	9 653	9 653	9 753	9 653	*47 231*
2035	10 867	10 968	10 968	11 146	10 968	*79 064*
2040	12 024	12 134	12 144	12 409	12 367	*132 195*
2045	12 488	12 603	12 637	12 971	13 052	*214 606*
2050	12 665	12 781	12 851	13 270	13 423	*342 421*
			F. Percentage in age group 65 or older			
1995	5.6	5.6	5.6	5.6	5.6	*5.6*
2000	6.7	6.7	6.7	6.7	6.7	*5.6*
2005	8.1	8.1	8.1	8.1	8.1	*5.6*
2010	9.3	9.3	9.3	9.3	9.3	*5.6*
2015	10.6	10.6	10.6	10.6	10.6	*5.6*
2020	12.3	12.3	12.3	12.3	12.3	*5.6*
2025	15.3	15.3	15.3	15.0	15.3	*5.5*
2030	18.1	18.1	18.1	17.4	18.1	*5.5*
2035	20.5	20.5	20.5	19.3	20.5	*5.5*
2040	22.8	22.8	22.7	20.9	20.6	*5.5*
2045	24.0	24.0	23.6	21.7	20.5	*5.5*
2050	24.7	24.7	24.0	22.1	20.4	*5.5*
			G. Age group 0-14 (thousands)			
1995	10 540	10 540	10 540	10 540	10 540	*10 540*
2000	10 068	10 091	10 091	10 091	10 091	*15 886*
2005	10 118	10 160	10 160	10 160	10 160	*26 585*
2010	9 882	9 945	9 945	9 945	9 945	*39 180*
2015	9 558	9 637	9 637	9 637	9 637	*55 160*
2020	9 213	9 299	9 299	9 299	9 299	*79 547*
2025	8 956	9 040	9 040	9 338	9 040	*128 197*
2030	8 827	8 909	8 909	9 632	8 909	*213 186*
2035	8 733	8 814	8 814	9 981	8 814	*362 937*
2040	8 592	8 672	8 748	10 286	10 514	*612 190*
2045	8 404	8 482	8 725	10 290	11 543	*993 619*
2050	8 209	8 285	8 752	10 205	12 043	*1 571 113*
			H. Potential support ratio in 2050, by age at entry into non-working-age population			
Age						
65	2.40	2.40	2.48	2.76	3.00	*12.62*
70	3.55	3.55	3.66	4.06	4.39	*20.96*
75	5.61	5.61	5.78	6.39	6.90	*39.32*
80	10.44	10.45	10.75	11.83	12.81	*88.83*

NOTE: The six scenarios can be described briefly as follows:

I – Corresponds to the medium variant of the official United Nations population projections (*World Population Prospects, 1998 Revision*).
II – This scenario amends the medium variant by assuming no migration after 1995.
III – This scenario keeps the total population figure constant at the highest level that it would reach in the absence of migration after 1995.
IV – This scenario keeps the number of persons aged 15-64 constant at the highest level that it would reach in the absence of migration after 1995.
V – This scenario prevents the ratio of persons aged 15-64 to persons aged 65 and above from falling below 3.0.
VI – This scenario keeps the ratio of persons aged 15-64 and above at the highest level that it would reach in the absence of migration after 1995. This scenario is considered to be demographically unrealistic.

TABLE A.11. RUSSIAN FEDERATION, *1998 REVISION*

RUSSIAN FEDERATION

A. ESTIMATES

Indicator	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995
Population (thousands)										
Total	102 192	111 402	119 906	126 749	130 392	134 233	138 660	143 329	148 292	148 097
Males	43 859	48 826	53 472	57 261	59 368	61 362	63 895	66 497	69 444	69 353
Females	58 333	62 576	66 434	69 488	71 024	72 870	74 765	76 832	78 848	78 744
Sex ratio (per 100 females)	75.2	78.0	80.5	82.4	83.6	84.2	85.5	86.5	88.1	88.1
Age distribution:										
Percentage aged 0-4	9.8	11.3	11.2	9.6	7.2	7.5	7.7	8.1	7.8	5.2
Percentage aged 5-14	19.1	15.6	18.7	20.3	19.4	15.8	13.9	14.5	15.2	15.9
Percentage aged 15-24	21.1	19.8	16.2	13.5	16.9	18.7	17.7	14.7	13.3	14.3
Percentage aged 60 or over	9.2	9.1	9.3	10.4	11.9	13.6	13.5	13.9	16.0	16.7
Percentage aged 65 or over	6.2	6.3	6.3	6.6	7.7	8.9	10.2	9.7	10.0	11.9
Percentage of women aged 15-49	55.3	55.0	50.2	47.4	49.5	50.9	49.1	47.8	45.8	48.7
Median age (years)	25.0	26.5	27.4	28.5	30.6	30.8	31.3	32.1	33.3	35.1
Population density (per sq km)	6	7	7	7	8	8	8	8	9	9

	1950-1955	1955-1960	1960-1965	1965-1970	1970-1975	1975-1980	1980-1985	1985-1990	1990-1995
Population change per year (thousands)	1 842	1 701	1 369	729	768	885	934	993	- 39
Births per year (thousands)	2 592	2 772	2 489	1 920	2 011	2 156	2 355	2 333	1 566
Deaths per year (thousands)	908	993	1 009	1 080	1 204	1 405	1 565	1 560	1 979
Population growth rate (percentage)	1.73	1.47	1.11	0.57	0.58	0.65	0.66	0.68	- 0.03
Crude birth rate (per 1,000 population)	24.3	24.0	20.2	14.9	15.2	15.8	16.7	16.0	10.6
Crude death rate (per 1,000 population)	8.5	8.6	8.2	8.4	9.1	10.3	11.1	10.7	13.4
Total fertility rate (per woman)	2.51	2.62	2.48	2.02	1.98	1.92	1.99	2.10	1.50
Gross reproduction rate (per woman)	1.23	1.28	1.21	0.99	0.97	0.94	0.97	1.02	0.73
Net reproduction rate (per woman)	1.16	1.22	1.16	0.95	0.93	0.90	0.94	0.99	0.71
Infant mortality rate (per 1,000 births)	98	57	39	31	28	30	26	24	18
Life expectancy at birth (years)									
Males	62.5	63.0	64.0	63.9	63.1	61.9	62.1	64.3	60.6
Females	70.5	71.0	72.6	73.5	73.5	73.1	73.4	74.3	72.8
Both sexes combined	67.3	67.7	69.0	69.0	68.2	67.4	67.6	69.2	66.5

B. MEDIUM-VARIANT PROJECTIONS

Indicator	1995	2000	2005	2010	2015	2020	2025	2030	2040	2050
Population (thousands)										
Total	148 097	146 934	145 549	144 418	142 945	140 639	137 933	135 207	128 875	121 256
Males	69 353	68 674	67 879	67 323	66 688	65 662	64 460	63 242	60 412	57 126
Females	78 744	78 260	77 670	77 095	76 258	74 977	73 473	71 965	68 463	64 129
Sex ratio (per 100 females)	88.1	87.8	87.4	87.3	87.5	87.6	87.7	87.9	88.2	89.1
Age distribution:										
Percentage aged 0-4	5.2	4.8	5.2	5.5	5.3	4.8	4.7	4.8	4.7	4.5
Percentage aged 5-14	15.9	13.4	10.4	10.2	10.9	11.1	10.5	9.9	10.0	9.8
Percentage aged 15-24	14.3	15.6	16.3	13.7	10.7	10.6	11.4	11.6	10.4	10.6
Percentage aged 60 or over	16.7	18.5	17.4	18.2	20.3	22.9	25.0	25.8	28.6	33.4
Percentage aged 65 or over	11.9	12.5	14.0	12.9	13.7	15.6	18.1	19.9	21.5	25.0
Percentage in school ages 6-11	9.7	7.4	5.9	6.2	6.6	6.6	6.1	5.8	6.0	5.8
Percentage in school ages 12-14	4.7	5.0	3.5	3.0	3.2	3.4	3.4	3.1	3.0	3.1
Percentage in school ages 15-17	4.5	4.9	4.7	3.1	3.0	3.3	3.5	3.3	3.0	3.1
Percentage in school ages 18-23	8.5	9.2	10.0	9.0	6.3	6.2	6.8	7.1	6.2	6.4
Percentage of women aged 15-49	48.7	50.6	50.8	47.9	45.4	44.7	43.9	42.3	37.0	37.7
Median age (years)	35.1	36.7	37.7	38.4	39.4	40.7	42.4	44.1	46.3	46.1
Population density (per sq km)	9	9	9	8	8	8	8	8	8	7

	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2025-2030	2030-2040	2040-2050
Population change per year (thousands)	-233	-277	-226	-295	-461	-541	-545	-633	-762
Births per year (thousands)	1 421	1 522	1 610	1 533	1 381	1 313	1 305	1 251	1 135
Deaths per year (thousands)	2 048	2 098	2 041	1 982	1 947	1 909	1 905	1 939	1 951
Net migration per year (thousands)	394	299	204	154	104	55	55	55	55
Population growth rate (percentage)	- 0.16	- 0.19	- 0.16	- 0.21	- 0.33	- 0.39	- 0.40	- 0.48	- 0.61
Crude birth rate (per 1,000 population)	9.6	10.4	11.1	10.7	9.7	9.4	9.6	9.5	9.1
Crude death rate (per 1,000 population)	13.9	14.3	14.1	13.8	13.7	13.7	13.9	14.7	15.6
Net migration rate (per 1,000 population)	2.7	2.0	1.4	1.1	0.7	0.4	0.4	0.4	0.4
Total fertility rate (per woman)	1.35	1.38	1.45	1.52	1.59	1.66	1.70	1.70	1.70
Gross reproduction rate (per woman)	0.66	0.67	0.71	0.74	0.78	0.81	0.83	0.83	0.83
Net reproduction rate (per woman)	0.64	0.65	0.69	0.72	0.76	0.79	0.81	0.82	0.82
Infant mortality rate (per 1,000 births)	18	18	16	15	14	13	12	10	9
Mortality under age 5 (per 1,000 births)	22	21	20	18	16	15	14	12	10
Life expectancy at birth (years)									
Males	60.6	61.3	63.3	65.3	66.8	68.3	69.5	70.9	72.8
Females	72.8	73.2	74.2	75.2	76.0	76.8	77.6	78.8	80.3
Both sexes combined	66.6	67.1	68.7	70.3	71.5	72.7	73.7	75.0	76.7

Source: United Nations Population Division, *World Population Prospects: The 1998 Revision.*

TABLE A.11 (*continued*)

RUSSIAN FEDERATION

C. HIGH-VARIANT PROJECTIONS

	1995	2000	2005	2010	2015	2020	2025	2030	2040	2050
Population (thousands)										
Total	148 097	147 856	148 470	149 512	150 232	150 306	150 380	150 806	151 568	151 823
Males	69 353	69 145	69 372	69 927	70 412	70 603	70 820	71 211	72 000	72 723
Females	78 744	78 711	79 098	79 585	79 820	79 704	79 559	79 595	79 568	79 099
Age distribution:										
Percentage aged 0-4	5.2	5.4	6.4	6.8	6.5	6.1	6.2	6.4	6.4	6.4
Percentage aged 5-14	15.9	13.3	10.8	11.8	13.2	13.3	12.7	12.3	12.9	12.8
Percentage aged 15-24	14.3	15.5	16.0	13.3	10.8	11.8	13.2	13.3	12.2	12.9
Percentage aged 60 or over	16.7	18.4	17.1	17.6	19.3	21.4	22.9	23.1	24.3	26.7
Percentage aged 65 or over	11.9	12.4	13.7	12.5	13.0	14.6	16.6	17.9	18.3	20.0
Percentage of women aged 15-49	48.7	50.3	49.9	46.4	44.0	43.9	43.6	42.7	39.4	41.7
Median age (years)	35.1	36.5	37.0	37.1	37.7	38.6	39.8	40.8	39.3	39.5

	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2025-2030	2030-2040	2040-2050
Population change per year (thousands)	- 48	123	208	144	15	15	85	76	25
Population growth rate (percentage)	- 0.03	0.08	0.14	0.10	0.01	0.01	0.06	0.05	0.02
Crude birth rate (per 1,000 population)	10.9	13.0	13.8	13.2	12.4	12.5	13.0	13.1	12.8
Crude death rate (per 1,000 population)	13.9	14.2	13.8	13.3	13.0	12.8	12.7	12.9	13.0
Net migration rate (per 1,000 population)	2.7	2.0	1.4	1.0	0.7	0.4	0.4	0.4	0.4
Total fertility rate (per woman)	1.52	1.75	1.85	1.95	2.05	2.10	2.10	2.10	2.10
Gross reproduction rate (per woman)	0.74	0.85	0.90	0.95	1.00	1.02	1.02	1.02	1.02
Net reproduction rate (per woman)	0.72	0.83	0.88	0.93	0.98	1.00	1.00	1.01	1.01

D. LOW-VARIANT PROJECTIONS

	1995	2000	2005	2010	2015	2020	2025	2030	2040	2050
Population (thousands)										
Total	148 097	146 675	144 561	142 315	139 469	135 613	131 063	126 190	115 164	102 544
Males	69 353	68 541	67 374	66 248	64 910	63 092	60 948	58 632	53 405	47 569
Females	78 744	78 133	77 187	76 067	74 559	72 521	70 115	67 558	61 759	54 975
Age distribution:										
Percentage aged 0-4	5.2	4.6	4.7	4.8	4.4	3.9	3.5	3.4	3.2	2.8
Percentage aged 5-14	15.9	13.4	10.3	9.7	9.9	9.7	8.8	7.9	7.3	6.8
Percentage aged 15-24	14.3	15.6	16.4	13.9	10.8	10.2	10.5	10.4	8.7	8.2
Percentage aged 60 or over	16.7	18.5	17.5	18.5	20.8	23.8	26.3	27.6	32.0	39.5
Percentage aged 65 or over	11.9	12.5	14.1	13.1	14.0	16.2	19.1	21.3	24.0	29.6
Percentage of women aged 15-49	48.7	50.6	51.1	48.6	46.3	45.6	44.5	42.6	35.6	34.1
Median age (years)	35.1	36.8	38.0	38.9	40.2	41.9	43.9	46.1	50.5	52.4

	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2025-2030	2030-2040	2040-2050
Population change per year (thousands)	-284	-423	-449	-569	-771	-910	-975	- 1 103	- 1 262
Population growth rate (percentage)	- 0.19	- 0.29	- 0.31	- 0.40	- 0.56	- 0.68	- 0.76	- 0.91	- 1.16
Crude birth rate (per 1,000 population)	9.3	9.4	9.6	8.9	7.7	7.0	6.7	6.4	5.7
Crude death rate (per 1,000 population)	13.9	14.4	14.2	14.0	14.1	14.3	14.7	16.0	17.8
Net migration rate (per 1,000 population)	2.7	2.1	1.4	1.1	0.8	0.4	0.4	0.5	0.5
Total fertility rate (per woman)	1.30	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Gross reproduction rate (per woman)	0.63	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61
Net reproduction rate (per woman)	0.61	0.59	0.59	0.59	0.59	0.59	0.60	0.60	0.60

E. CONSTANT-VARIANT PROJECTIONS

	1995	2000	2005	2010	2015	2020	2025	2030	2040	2050
Population (thousands)										
Total	148 097	147 737	146 999	146 136	144 608	142 120	139 129	135 950	128 334	119 039

	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2025-2030	2030-2040	2040-2050
Population growth rate (percentage)	- 0.05	- 0.10	- 0.12	- 0.21	- 0.35	- 0.43	- 0.46	- 0.58	- 0.75
Crude birth rate (per 1,000 population)	10.7	11.2	11.4	10.5	9.4	8.9	8.8	8.5	7.8
Crude death rate (per 1,000 population)	13.9	14.3	13.9	13.6	13.6	13.6	13.9	14.7	15.8

Source: United Nations Population Division, *World Population Prospects: The 1998 Revision.*

TABLE A.12. RUSSIAN FEDERATION, REPLACEMENT MIGRATION SCENARIOS

RUSSIAN FEDERATION

Scenario	I	II	III	IV	V	*VI*
Period	Medium variant	Medium variant with zero migration	Constant total population	Constant age group 15-64	Ratio 15-64/65+ not less than 3.0	*Constant ratio 15-64/65 years or older*
			A. Average annual net migration (thousands)			
1995-2000	394	0	611	0	0	*746*
2000-2005	299	0	539	95	0	*3 801*
2005-2010	204	0	387	79	0	*-3 888*
2010-2015	154	0	392	899	0	*2 372*
2015-2020	104	0	470	1 094	0	*6 376*
2020-2025	55	0	464	994	0	*7 995*
2025-2030	55	0	447	730	0	*6 089*
2030-2035	55	0	486	443	0	*2 557*
2035-2040	55	0	558	695	254	*4 480*
2040-2045	55	0	606	873	2 061	*6 347*
2045-2050	55	0	635	1 189	3 006	*11 867*
Grand total 1995-2050	7 417	0	27 971	35 454	26 604	*243 709*
			B. Total population (thousands)			
1995	148 097	148 097	148 097	148 097	148 097	*148 097*
2000	146 934	144 960	148 097	144 960	144 960	*148 791*
2005	145 549	142 048	148 097	142 536	142 074	*165 588*
2010	144 418	139 796	148 097	140 718	139 907	*144 436*
2015	142 945	137 434	148 097	143 055	137 640	*154 123*
2020	140 639	134 582	148 097	146 223	134 798	*185 030*
2025	137 933	131 649	148 097	149 146	131 824	*226 586*
2030	135 207	128 727	148 097	150 974	128 858	*260 764*
2035	132 243	125 578	148 097	151 191	125 687	*277 531*
2040	128 875	122 027	148 097	152 318	123 471	*303 736*
2045	125 170	118 186	148 097	154 192	130 491	*340 184*
2050	121 256	114 178	148 097	157 658	143 093	*406 551*
			C. Age group 15-64 (thousands)			
1995	99 200	99 200	99 200	99 200	99 200	*99 200*
2000	101 862	100 467	102 703	100 467	100 467	*103 198*
2005	102 592	100 119	104 480	100 467	100 111	*116 950*
2010	103 028	99 804	105 879	100 467	99 775	*103 557*
2015	100 229	96 455	104 349	100 467	96 398	*109 032*
2020	96 217	92 136	102 179	100 467	92 054	*128 725*
2025	92 021	87 876	100 056	100 467	87 764	*156 042*
2030	88 473	84 327	98 521	100 467	84 185	*178 976*
2035	85 819	81 700	97 915	100 467	81 532	*191 288*
2040	82 322	78 216	96 629	100 467	78 969	*209 991*
2045	78 365	74 244	95 067	100 467	82 658	*235 545*
2050	73 569	69 413	92 796	100 467	89 610	*279 890*
			D. Potential support ratio 15-64/65 or older			
1995	5.62	5.62	5.62	5.62	5.62	*5.62*
2000	5.54	5.51	5.60	5.51	5.51	*5.62*
2005	5.04	5.00	5.16	5.02	4.99	*5.62*
2010	5.52	5.51	5.74	5.54	5.47	*5.62*
2015	5.13	5.15	5.45	5.31	5.08	*5.62*
2020	4.38	4.39	4.73	4.69	4.32	*5.62*
2025	3.68	3.69	4.05	4.09	3.63	*5.62*
2030	3.28	3.29	3.67	3.78	3.25	*5.62*
2035	3.17	3.20	3.58	3.74	3.15	*5.62*
2040	2.98	3.02	3.39	3.63	3.00	*5.62*
2045	2.74	2.78	3.16	3.43	3.00	*5.62*
2050	2.43	2.44	2.85	3.12	3.00	*5.62*

TABLE A.12 (*continued*)

RUSSIAN FEDERATION

Scenario	I	II	III	IV	V	*VI*
Period	Medium variant	Medium variant with zero migration	Constant total population	Constant age group 15-64	Ratio 15-64/65+ not less than 3.0	*Constant ratio 15-64/65 years or older*
			E. Age group 65 or older (thousands)			
1995	17 664	17 664	17 664	17 664	17 664	*17 664*
2000	18 393	18 249	18 353	18 249	18 249	*18 376*
2005	20 341	20 017	20 240	20 033	20 052	*20 825*
2010	18 670	18 104	18 436	18 139	18 251	*18 440*
2015	19 532	18 712	19 163	18 909	18 992	*19 415*
2020	21 985	20 985	21 598	21 423	21 310	*22 922*
2025	24 989	23 835	24 687	24 550	24 156	*27 786*
2030	26 938	25 603	26 830	26 594	25 914	*31 870*
2035	27 112	25 569	27 379	26 855	25 894	*34 062*
2040	27 661	25 919	28 481	27 683	26 323	*37 393*
2045	28 620	26 755	30 101	29 301	27 553	*41 943*
2050	30 315	28 398	32 504	32 168	29 870	*49 840*
			F. Percentage in age group 65 or older			
1995	11.9	11.9	11.9	11.9	11.9	*11.9*
2000	12.5	12.6	12.4	12.6	12.6	*12.4*
2005	14.0	14.1	13.7	14.1	14.1	*12.6*
2010	12.9	13.0	12.4	12.9	13.0	*12.8*
2015	13.7	13.6	12.9	13.2	13.8	*12.6*
2020	15.6	15.6	14.6	14.7	15.8	*12.4*
2025	18.1	18.1	16.7	16.5	18.3	*12.3*
2030	19.9	19.9	18.1	17.6	20.1	*12.2*
2035	20.5	20.4	18.5	17.8	20.6	*12.3*
2040	21.5	21.2	19.2	18.2	21.3	*12.3*
2045	22.9	22.6	20.3	19.0	21.1	*12.3*
2050	25.0	24.9	21.9	20.4	20.9	*12.3*
			G. Age group 0-14 (thousands)			
1995	31 232	31 232	31 232	31 232	31 232	*31 232*
2000	26 679	26 244	27 040	26 244	26 244	*27 216*
2005	22 617	21 911	23 377	22 036	21 910	*27 813*
2010	22 720	21 887	23 782	22 112	21 881	*22 438*
2015	23 185	22 267	24 584	23 679	22 250	*25 676*
2020	22 437	21 461	24 319	24 333	21 434	*33 384*
2025	20 923	19 938	23 353	24 129	19 905	*42 759*
2030	19 796	18 797	22 746	23 913	18 758	*49 918*
2035	19 313	18 309	22 803	23 869	18 261	*52 181*
2040	18 891	17 892	22 986	24 168	18 179	*56 352*
2045	18 185	17 187	22 929	24 423	20 280	*62 696*
2050	17 372	16 367	22 797	25 023	23 613	*76 821*
			H. Potential support ratio in 2050, by age at entry into non-working-age population			
Age						
65	2.43	2.44	2.85	3.12	3.00	*5.62*
70	3.95	4.03	4.67	5.16	4.83	*9.20*
75	6.66	6.91	8.02	8.87	8.11	*15.80*
80	12.05	12.78	15.09	16.48	14.62	*30.37*

NOTE: The six scenarios can be described briefly as follows:

I – Corresponds to the medium variant of the official United Nations population projections (*World Population Prospects, 1998 Revision*).
II – This scenario amends the medium variant by assuming no migration after 1995.
III – This scenario keeps the total population figure constant at the highest level that it would reach in the absence of migration after 1995.
IV – This scenario keeps the number of persons aged 15-64 constant at the highest level that it would reach in the absence of migration after 1995.
V – This scenario prevents the ratio of persons aged 15-64 to persons aged 65 and above from falling below 3.0.
VI – This scenario keeps the ratio of persons aged 15-64 and above at the highest level that it would reach in the absence of migration after 1995. This scenario is considered to be demographically unrealistic.

TABLE A.13. UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND, *1998 REVISION*

UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND

A. ESTIMATES

Indicator	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995
Population (thousands)										
Total	50 616	51 199	52 372	54 350	55 632	56 226	56 330	56 618	57 561	58 308
Males	24 575	24 726	25 271	26 368	27 064	27 403	27 436	27 574	28 118	28 574
Females	26 041	26 473	27 101	27 982	28 568	28 823	28 894	29 044	29 443	29 734
Sex ratio (per 100 females)	94.4	93.4	93.2	94.2	94.7	95.1	95.0	94.9	95.5	96.1
Age distribution:										
Percentage aged 0-4	8.6	7.5	7.9	8.7	8.1	7.1	6.0	6.4	6.7	6.4
Percentage aged 5-14	13.7	15.3	15.3	14.5	16.1	16.3	14.9	12.9	12.5	12.9
Percentage aged 15-24	13.6	12.9	13.3	14.6	14.7	14.3	15.5	16.4	14.3	12.7
Percentage aged 60 or over	15.5	16.2	16.9	17.6	18.7	19.6	20.1	20.7	20.9	20.7
Percentage aged 65 or over	10.7	11.3	11.7	12.0	12.9	14.0	15.1	15.1	15.7	15.9
Percentage of women aged 15-49	49.2	47.1	45.3	44.6	43.6	43.6	45.3	47.5	48.1	47.6
Median age (years)	34.6	35.0	35.4	34.8	33.7	33.9	34.6	35.3	36.1	36.9
Population density (per sq km)	207	210	215	223	228	230	231	232	236	239

	1950-1955	1955-1960	1960-1965	1965-1970	1970-1975	1975-1980	1980-1985	1985-1990	1990-1995
Population change per year (thousands)	117	235	396	256	119	21	58	189	149
Births per year (thousands)	808	849	971	966	811	696	732	775	753
Deaths per year (thousands)	595	604	629	641	654	668	658	655	656
Population growth rate (percentage)	0.23	0.45	0.74	0.47	0.21	0.04	0.10	0.33	0.26
Crude birth rate (per 1,000 population)	15.9	16.4	18.2	17.6	14.5	12.4	13.0	13.6	13.0
Crude death rate (per 1,000 population)	11.7	11.7	11.8	11.7	11.7	11.9	11.7	11.5	11.3
Total fertility rate (per woman)	2.18	2.49	2.81	2.52	2.04	1.72	1.80	1.81	1.78
Gross reproduction rate (per woman)	1.06	1.22	1.37	1.23	1.00	0.84	0.88	0.88	0.87
Net reproduction rate (per woman)	1.02	1.18	1.34	1.20	0.97	0.82	0.87	0.87	0.86
Infant mortality rate (per 1,000 births)	29	24	22	19	17	14	11	9	7
Life expectancy at birth (years)									
Males	66.7	67.7	67.9	68.3	69.0	69.7	71.0	72.3	73.7
Females	71.8	73.3	73.8	74.6	75.2	76.0	77.2	77.9	79.0
Both sexes combined	69.2	70.4	70.8	71.4	72.0	72.8	74.0	75.0	76.2

B. MEDIUM-VARIANT PROJECTIONS

	1995	2000	2005	2010	2015	2020	2025	2030	2040	2050
Population (thousands)										
Total	58 308	58 830	59 143	59 331	59 566	59 845	59 961	59 619	58 289	56 667
Males	28 574	28 886	29 084	29 208	29 342	29 484	29 531	29 348	28 668	27 898
Females	29 734	29 944	30 059	30 124	30 224	30 361	30 430	30 271	29 621	28 768
Sex ratio (per 100 females)	96.1	96.5	96.8	97.0	97.1	97.1	97.0	96.9	96.8	97.0
Age distribution:										
Percentage aged 0-4	6.4	5.9	5.5	5.4	5.5	5.7	5.6	5.4	5.2	5.4
Percentage aged 5-14	12.9	12.9	12.2	11.4	10.9	10.9	11.2	11.3	10.8	10.8
Percentage aged 15-24	12.7	12.3	12.7	12.9	12.2	11.3	10.8	10.9	11.6	11.1
Percentage aged 60 or over	20.7	21.0	21.8	23.5	24.8	26.3	28.3	30.0	30.7	31.3
Percentage aged 65 or over	15.9	16.0	16.4	17.1	18.7	19.8	21.2	23.1	25.0	24.9
Percentage in school ages 6-11	7.8	7.8	7.2	6.7	6.5	6.6	6.8	6.8	6.4	6.5
Percentage in school ages 12-14	3.7	3.9	3.9	3.6	3.3	3.2	3.3	3.4	3.3	3.2
Percentage in school ages 15-17	3.6	3.8	3.9	3.8	3.5	3.3	3.2	3.4	3.4	3.2
Percentage in school ages 18-23	7.6	7.3	7.6	7.8	7.5	6.9	6.5	6.5	7.0	6.7
Percentage of women aged 15-49	47.6	46.4	46.0	45.1	43.1	40.9	39.9	39.7	39.2	38.6
Median age (years)	36.9	38.2	39.7	41.2	42.1	42.6	43.1	43.6	44.8	44.5
Population density (per sq km)	239	241	242	243	244	245	246	244	239	232

	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2025-2030	2030-2040	2040-2050
Population change per year (thousands)	104	63	38	47	56	23	-68	-133	-162
Births per year (thousands)	697	654	641	632	685	670	643	617	614
Deaths per year (thousands)	632	631	644	656	669	687	711	750	776
Net migration per year (thousands)	40	40	40	40	40	40	0	0	0
Population growth rate (percentage)	0.18	0.11	0.06	0.08	0.09	0.04	- 0.11	- 0.23	- 0.28
Crude birth rate (per 1,000 population)	11.9	11.1	10.8	11.1	11.5	11.2	10.8	10.5	10.7
Crude death rate (per 1,000 population)	10.8	10.7	10.9	11.0	11.2	11.5	11.9	12.7	13.5
Net migration rate (per 1,000 population)	0.7	0.7	0.7	0.7	0.7	0.7	0.0	0.0	0.0
Total fertility rate (per woman)	1.72	1.72	1.76	1.83	1.90	1.90	1.90	1.90	1.90
Gross reproduction rate (per woman)	0.84	0.84	0.86	0.89	0.92	0.93	0.93	0.93	0.93
Net reproduction rate (per woman)	0.83	0.83	0.85	0.88	0.92	0.92	0.92	0.92	0.92
Infant mortality rate (per 1,000 births)	7	7	6	6	6	6	5	5	5
Mortality under age 5 (per 1,000 births)	8	8	7	7	7	6	6	6	5
Life expectancy at birth (years)									
Males	74.5	75.3	75.8	76.3	76.8	77.3	77.8	78.4	79.2
Females	79.8	80.6	81.1	81.6	82.1	82.6	83.0	83.6	84.4
Both sexes combined	77.2	78.0	78.5	78.9	79.4	79.9	80.4	81.0	81.8

Source: United Nations Population Division, *World Population Prospects: The 1998 Revision.*

TABLE A.13 (*continued*)

UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND

C. HIGH-VARIANT PROJECTIONS

	1995	2000	2005	2010	2015	2020	2025	2030	2040	2050
Population (thousands)										
Total	58 308	59 011	59 758	60 481	61 309	62 274	63 243	63 879	64 905	66 131
Males	28 574	28 979	29 399	29 797	30 235	30 729	31 212	31 529	32 056	32 743
Females	29 734	30 032	30 359	30 685	31 074	31 546	32 031	32 350	32 850	33 387
Age distribution:										
Percentage aged 0-4	6.4	6.2	6.2	6.2	6.3	6.6	6.6	6.5	6.6	6.9
Percentage aged 5-14	12.9	12.9	12.4	12.2	12.1	12.3	12.7	13.0	12.9	13.2
Percentage aged 15-24	12.7	12.2	12.6	12.6	12.2	11.9	11.8	12.0	12.8	12.7
Percentage aged 60 or over	20.7	20.9	21.6	23.1	24.1	25.2	26.8	28.0	27.6	26.8
Percentage aged 65 or over	15.9	16.0	16.2	16.8	18.2	19.0	20.1	21.5	22.4	21.3
Percentage of women aged 15-49	47.6	46.2	45.5	44.3	42.2	40.3	39.7	39.7	40.2	40.8
Median age (years)	36.9	38.1	39.4	40.5	41.0	40.9	40.8	40.8	40.2	39.1

	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2025-2030	2030-2040	2040-2050
Population change per year (thousands)	141	149	145	166	193	194	127	103	123
Population growth rate (percentage)	0.24	0.25	0.24	0.27	0.31	0.31	0.20	0.16	0.19
Crude birth rate (per 1,000 population)	12.5	12.5	12.5	12.8	13.3	13.4	13.2	13.3	13.8
Crude death rate (per 1,000 population)	10.8	10.6	10.7	10.8	10.9	11.0	11.2	11.7	11.9
Net migration rate (per 1,000 population)	0.7	0.7	0.7	0.7	0.6	0.6	0.0	0.0	0.0
Total fertility rate (per woman)	1.81	1.95	2.05	2.15	2.25	2.30	2.30	2.30	2.30
Gross reproduction rate (per woman)	0.88	0.95	1.00	1.05	1.10	1.12	1.12	1.12	1.12
Net reproduction rate (per woman)	0.87	0.94	0.99	1.04	1.09	1.11	1.11	1.11	1.11

D. LOW-VARIANT PROJECTIONS

	1995	2000	2005	2010	2015	2020	2025	2030	2040	2050
Population (thousands)										
Total	58 308	58 649	58 547	58 273	57 917	57 455	56 775	55 575	52 292	48 403
Males	28 574	28 794	28 779	28 666	28 497	28 260	27 900	27 277	25 597	23 668
Females	29 734	29 856	29 769	29 607	29 420	29 195	28 876	28 298	26 694	24 735
Age distribution:										
Percentage aged 0-4	6.4	5.6	4.8	4.7	4.7	4.6	4.5	4.2	3.9	3.9
Percentage aged 5-14	12.9	13.0	12.0	10.5	9.7	9.5	9.5	9.4	8.6	8.2
Percentage aged 15-24	12.7	12.3	12.9	13.1	12.2	10.8	9.9	9.8	10.0	9.2
Percentage aged 60 or over	20.7	21.0	22.0	23.9	25.5	27.4	29.9	32.1	34.2	36.6
Percentage aged 65 or over	15.9	16.1	16.5	17.4	19.2	20.6	22.4	24.8	27.8	29.1
Percentage of women aged 15-49	47.6	46.5	46.4	45.9	43.9	41.5	40.3	39.6	37.7	35.4
Median age (years)	36.9	38.3	40.1	41.8	43.2	44.3	45.2	46.3	48.8	50.7

	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2025-2030	2030-2040	2040-2050
Population change per year (thousands)	68	-20	-55	-71	-92	-136	-240	-328	-389
Population growth rate (percentage)	0.12	- 0.04	- 0.09	- 0.12	- 0.16	- 0.24	- 0.43	- 0.61	- 0.77
Crude birth rate (per 1,000 population)	11.3	9.7	9.4	9.4	9.3	8.9	8.4	7.8	7.6
Crude death rate (per 1,000 population)	10.8	10.8	11.0	11.3	11.6	12.0	12.6	13.9	15.3
Net migration rate (per 1,000 population)	0.7	0.7	0.7	0.7	0.7	0.7	0.0	0.0	0.0
Total fertility rate (per woman)	1.63	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Gross reproduction rate (per woman)	0.80	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Net reproduction rate (per woman)	0.79	0.72	0.72	0.72	0.72	0.72	0.73	0.73	0.73

E. CONSTANT-VARIANT PROJECTIONS

	1995	2000	2005	2010	2015	2020	2025	2030	2040	2050
Population (thousands)										
Total	58 308	58 951	59 377	59 610	59 768	59 860	59 810	59 326	57 634	55 431

	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2025-2030	2030-2040	2040-2050
Population growth rate (percentage)	0.22	0.14	0.08	0.05	0.03	- 0.02	- 0.16	- 0.29	- 0.39
Crude birth rate (per 1,000 population)	12.3	11.4	10.9	10.8	10.8	10.6	10.3	9.9	9.8
Crude death rate (per 1,000 population)	10.8	10.7	10.8	11.0	11.2	11.5	11.9	12.8	13.7

Source: United Nations Population Division, *World Population Prospects: The 1998 Revision.*

TABLE A.14. UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND, REPLACEMENT MIGRATION SCENARIOS

UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND

Scenario	I	II	III	IV	V	*VI*
Period	Medium variant	Medium variant with zero migration	Constant total population	Constant age group 15-64	Ratio 15-64/65+ not less than 3.0	*Constant ratio 15-64/65 years or older*
			A. Average annual net migration (thousands)			
1995-2000	40	0	0	0	0	*11*
2000-2005	40	0	0	0	0	*62*
2005-2010	40	0	0	0	0	*563*
2010-2015	40	0	0	188	0	*1 529*
2015-2020	40	0	0	177	0	*1 163*
2020-2025	40	0	12	241	263	*1 421*
2025-2030	0	0	59	280	1 373	*1 765*
2030-2035	0	0	100	178	952	*1 365*
2035-2040	0	0	119	47	147	*759*
2040-2045	0	0	121	29	0	*1 079*
2045-2050	0	0	116	110	0	*2 239*
Grand total 1995-2050	1 200	0	2 634	6 247	13 674	*59 775*
			B. Total population (thousands)			
1995	58 308	58 308	58 308	58 308	58 308	*58 308*
2000	58 830	58 600	58 600	58 600	58 600	*58 655*
2005	59 143	58 694	58 694	58 694	58 694	*59 078*
2010	59 331	58 685	58 685	58 685	58 685	*62 066*
2015	59 566	58 734	58 734	59 724	58 734	*70 503*
2020	59 845	58 833	58 833	60 860	58 833	*77 858*
2025	59 961	58 768	58 833	62 248	60 160	*86 856*
2030	59 619	58 449	58 833	63 690	67 253	*97 931*
2035	59 029	57 883	58 833	64 456	72 598	*107 299*
2040	58 289	57 168	58 833	64 417	73 907	*113 699*
2045	57 488	56 393	58 833	64 197	74 243	*121 756*
2050	56 667	55 594	58 833	64 354	74 398	*136 138*
			C. Age group 15-64 (thousands)			
1995	37 811	37 811	37 811	37 811	37 811	*37 811*
2000	38 328	38 207	38 207	38 207	38 207	*38 246*
2005	38 981	38 739	38 739	38 739	38 739	*39 009*
2010	39 237	38 873	38 873	38 873	38 873	*41 244*
2015	38 661	38 180	38 180	38 873	38 180	*46 397*
2020	38 062	37 468	37 468	38 873	37 468	*50 665*
2025	37 166	36 465	36 510	38 873	37 437	*55 979*
2030	35 914	35 230	35 497	38 873	41 359	*62 859*
2035	34 938	34 266	34 924	38 873	44 429	*69 084*
2040	34 418	33 750	34 902	38 873	45 292	*73 616*
2045	34 009	33 343	35 037	38 873	45 860	*79 089*
2050	33 406	32 745	35 009	38 873	46 266	*88 239*
			D. Potential support ratio 15-64/65 or older			
1995	4.09	4.09	4.09	4.09	4.09	*4.09*
2000	4.06	4.08	4.08	4.08	4.09	*4.09*
2005	4.03	4.06	4.06	4.06	4.06	*4.09*
2010	3.86	3.90	3.90	3.90	3.90	*4.09*
2015	3.47	3.50	3.50	3.55	3.50	*4.09*
2020	3.21	3.23	3.23	3.33	3.23	*4.09*
2025	2.92	2.93	2.94	3.09	3.00	*4.09*
2030	2.61	2.62	2.63	2.84	3.00	*4.09*
2035	2.41	2.41	2.45	2.68	3.00	*4.09*
2040	2.37	2.36	2.43	2.64	3.00	*4.09*
2045	2.38	2.37	2.47	2.66	3.05	*4.09*
2050	2.37	2.36	2.49	2.64	3.06	*4.09*

TABLE A.14 (*continued*)

UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND

Scenario	I	II	III	IV	V	*VI*
Period	Medium variant	Medium variant with zero migration	Constant total population	Constant age group 15-64	Ratio 15-64/65+ not less than 3.0	*Constant ratio 15-64/65 years or older*
			E. Age group 65 or older (thousands)			
1995	9 256	9 256	9 256	9 256	9 256	*9 256*
2000	9 433	9 360	9 360	9 360	9 360	*9 362*
2005	9 675	9 535	9 535	9 535	9 535	*9 549*
2010	10 162	9 976	9 976	9 976	9 976	*10 096*
2015	11 140	10 916	10 916	10 951	10 916	*11 357*
2020	11 859	11 604	11 604	11 684	11 604	*12 402*
2025	12 724	12 431	12 433	12 578	12 479	*13 703*
2030	13 757	13 467	13 481	13 705	13 786	*15 387*
2035	14 478	14 197	14 234	14 530	14 810	*16 911*
2040	14 545	14 280	14 351	14 717	15 097	*18 020*
2045	14 291	14 047	14 161	14 635	15 046	*19 360*
2050	14 107	13 881	14 048	14 722	15 122	*21 600*
			F. Percentage in age group 65 or older			
1995	15.9	15.9	15.9	15.9	15.9	*15.9*
2000	16.0	16.0	16.0	16.0	16.0	*16.0*
2005	16.4	16.2	16.2	16.2	16.2	*16.2*
2010	17.1	17.0	17.0	17.0	17.0	*16.3*
2015	18.7	18.6	18.6	18.3	18.6	*16.1*
2020	19.8	19.7	19.7	19.2	19.7	*15.9*
2025	21.2	21.2	21.1	20.2	20.7	*15.8*
2030	23.1	23.0	22.9	21.5	20.5	*15.7*
2035	24.5	24.5	24.2	22.5	20.4	*15.8*
2040	25.0	25.0	24.4	22.8	20.4	*15.8*
2045	24.9	24.9	24.1	22.8	20.3	*15.9*
2050	24.9	25.0	23.9	22.9	20.3	*15.9*
			G. Age group 0-14 (thousands)			
1995	11 241	11 241	11 241	11 241	11 241	*11 241*
2000	11 069	11 033	11 033	11 033	11 033	*11 048*
2005	10 488	10 420	10 420	10 420	10 420	*10 521*
2010	9 933	9 836	9 836	9 836	9 836	*10 726*
2015	9 765	9 637	9 637	9 900	9 637	*12 749*
2020	9 924	9 761	9 761	10 303	9 761	*14 791*
2025	10 071	9 872	9 890	10 796	10 245	*17 174*
2030	9 949	9 751	9 854	11 111	12 108	*19 686*
2035	9 613	9 421	9 675	11 053	13 359	*21 304*
2040	9 326	9 138	9 580	10 827	13 518	*22 063*
2045	9 188	9 003	9 635	10 689	13 336	*23 307*
2050	9 153	8 968	9 775	10 759	13 010	*26 299*
			H. Potential support ratio in 2050 by age at entry into non-working-age population			
Age						
65	2.37	2.36	2.49	2.64	3.06	*4.09*
70	3.38	3.37	3.55	3.80	4.34	*6.17*
75	4.97	4.95	5.21	5.61	6.34	*9.57*
80	7.99	7.97	8.38	9.02	10.16	*15.92*

NOTE: The six scenarios can be described briefly as follows:

I – Corresponds to the medium variant of the official United Nations population projections (*World Population Prospects, 1998 Revision*).
II – This scenario amends the medium variant by assuming no migration after 1995.
III – This scenario keeps the total population figure constant at the highest level that it would reach in the absence of migration after 1995.
IV – This scenario keeps the number of persons aged 15-64 constant at the highest level that it would reach in the absence of migration after 1995.
V – This scenario prevents the ratio of persons aged 15-64 to persons aged 65 and above from falling below 3.0.
VI – This scenario keeps the ratio of persons aged 15-64 and above at the highest level that it would reach in the absence of migration after 1995. This scenario is considered to be demographically unrealistic.

TABLE A.17. EUROPE, *1998 REVISION*

EUROPE

A. ESTIMATES

Indicator	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995
Population (thousands)										
Total	547 318	575 404	604 947	635 066	656 441	676 390	693 260	706 580	722 206	727 912
Males	255 330	270 176	285 567	301 589	312 918	323 102	332 022	338 968	347 683	351 067
Females	291 988	305 228	319 380	333 478	343 523	353 288	361 238	367 612	374 523	376 845
Sex ratio (per 100 females)	87.4	88.5	89.4	90.4	91.1	91.5	91.9	92.2	92.8	93.2
Age distribution:										
Percentage aged 0-4	9.2	9.5	9.5	9.0	8.0	7.6	7.2	7.0	6.7	5.7
Percentage aged 5-14	17.0	16.0	17.2	17.5	17.3	16.1	15.0	14.3	13.8	13.5
Percentage aged 15-24	17.3	16.6	15.2	14.5	15.8	16.4	16.2	15.5	14.4	14.0
Percentage aged 60 or over	12.1	12.4	13.1	14.1	15.5	16.4	16.0	16.9	18.2	19.0
Percentage aged 65 or over	8.2	8.6	8.8	9.4	10.5	11.4	12.4	11.9	12.7	13.9
Percentage of women aged 15-49	51.8	50.9	48.1	46.7	47.7	47.9	47.7	47.9	47.5	48.6
Median age (years)	29.2	29.7	30.4	30.9	31.7	32.1	32.6	33.5	34.7	36.1
Population density (per sq km)	24	25	26	28	29	29	30	31	31	32

	1950-1955	1955-1960	1960-1965	1965-1970	1970-1975	1975-1980	1980-1985	1985-1990	1990-1995
Population change per year (thousands)	5 617	5 909	6 024	4 275	3 990	3 374	2 664	3 125	1 141
Births per year (thousands)	11 740	11 999	11 767	10 923	10 390	10 125	10 054	9 761	8 317
Deaths per year (thousands)	5 932	5 933	6 027	6 366	6 704	7 159	7 480	7 534	8 223
Population growth rate (percentage)	1.00	1.00	0.97	0.66	0.60	0.49	0.38	0.44	0.16
Crude birth rate (per 1,000 population)	20.9	20.3	19.0	16.9	15.6	14.8	14.4	13.7	11.5
Crude death rate (per 1,000 population)	10.6	10.1	9.7	9.9	10.1	10.5	10.7	10.5	11.3
Total fertility rate (per woman)	2.57	2.59	2.56	2.36	2.14	1.97	1.87	1.83	1.57
Gross reproduction rate (per woman)	1.25	1.26	1.24	1.15	1.04	0.96	0.91	0.89	0.76
Net reproduction rate (per woman)	1.14	1.17	1.18	1.09	1.00	0.93	0.89	0.87	0.75
Infant mortality rate (per 1,000 births)	72	51	37	30	25	22	18	15	12
Life expectancy at birth (years)									
Males	63.5	65.4	66.7	67.0	67.2	67.3	67.9	69.1	68.5
Females	68.6	70.8	72.6	73.6	74.2	75.0	75.7	76.7	76.7
Both sexes combined	66.2	68.3	69.8	70.4	70.8	71.2	71.9	73.0	72.6

B. MEDIUM-VARIANT PROJECTIONS

	1995	2000	2005	2010	2015	2020	2025	2030	2040	2050
Population (thousands)										
Total	727 912	728 887	727 431	724 242	719 307	711 909	702 335	690 976	662 541	627 691
Males	351 067	351 737	351 215	349 905	347 794	344 427	339 908	334 398	320 511	304 019
Females	376 845	377 150	376 217	374 337	371 513	367 482	362 427	356 578	342 029	323 672
Sex ratio (per 100 females)	93.2	93.3	93.4	93.5	93.6	93.7	93.8	93.8	93.7	93.9
Age distribution:										
Percentage aged 0-4	5.7	5.1	5.0	5.0	5.0	4.8	4.7	4.7	4.7	4.7
Percentage aged 5-14	13.5	12.4	10.9	10.2	10.2	10.2	10.0	9.8	9.7	9.7
Percentage aged 15-24	14.0	13.8	13.6	12.6	11.1	10.5	10.5	10.5	10.3	10.3
Percentage aged 60 or over	19.0	20.3	20.7	22.0	23.8	26.0	28.1	29.8	32.6	34.7
Percentage aged 65 or over	13.9	14.7	15.9	16.2	17.4	19.0	21.0	22.9	25.7	27.6
Percentage in school ages 6-11	8.1	7.2	6.3	6.1	6.1	6.1	5.9	5.8	5.8	5.8
Percentage in school ages 12-14	4.1	4.1	3.5	3.1	3.1	3.1	3.1	3.0	3.0	3.0
Percentage in school ages 15-17	4.1	4.1	4.0	3.3	3.1	3.1	3.1	3.1	3.0	3.0
Percentage in school ages 18-23	8.5	8.3	8.3	7.8	6.7	6.3	6.3	6.4	6.2	6.2
Percentage of women aged 15-49	48.6	48.7	48.2	46.4	44.2	42.4	40.9	39.5	36.7	36.5
Median age (years)	36.1	37.8	39.4	40.8	42.1	43.4	44.6	45.8	47.5	47.4
Population density (per sq km)	32	32	32	32	31	31	31	30	29	27

	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2025-2030	2030-2040	2040-2050
Population change per year (thousands)	195	-291	-638	-987	- 1 480	- 1 915	- 2 272	- 2 844	- 3 485
Births per year (thousands)	7 493	7 359	7 336	7 196	6 912	6 657	6 503	6 283	5 963
Deaths per year (thousands)	8 248	8 406	8 509	8 641	8 769	8 877	9 040	9 392	9 712
Net migration per year (thousands)	950	757	535	458	377	305	265	265	265
Population growth rate (percentage)	0.03	- 0.04	- 0.09	- 0.14	- 0.21	- 0.27	- 0.33	- 0.42	- 0.54
Crude birth rate (per 1,000 population)	10.3	10.1	10.1	10.0	9.7	9.4	9.3	9.3	9.2
Crude death rate (per 1,000 population)	11.3	11.5	11.7	12.0	12.3	12.6	13.0	13.9	15.0
Net migration rate (per 1,000 population)	1.3	1.0	0.7	0.6	0.5	0.4	0.4	0.4	0.4
Total fertility rate (per woman)	1.42	1.42	1.47	1.54	1.61	1.67	1.72	1.75	1.77
Gross reproduction rate (per woman)	0.69	0.69	0.72	0.75	0.78	0.81	0.84	0.85	0.86
Net reproduction rate (per woman)	0.68	0.68	0.70	0.74	0.77	0.80	0.83	0.84	0.85
Infant mortality rate (per 1,000 births)	12	11	10	10	9	8	8	7	6
Mortality under age 5 (per 1,000 births)	14	13	12	11	10	9	9	8	7
Life expectancy at birth (years)									
Males	69.2	70.1	71.3	72.4	73.3	74.1	74.9	75.8	76.9
Females	77.4	78.1	78.8	79.5	80.2	80.8	81.4	82.2	83.2
Both sexes combined	73.3	74.1	75.0	75.9	76.7	77.5	78.1	79.0	80.1

Source: United Nations Population Division, *World Population Prospects: The 1998 Revision*.

C. HIGH-VARIANT PROJECTIONS

	1995	2000	2005	2010	2015	2020	2025	2030	2040	2050
Population (thousands)										
Total	727 912	731 714	736 918	741 460	744 534	745 848	746 730	747 670	748 169	745 949
Males	351 067	353 185	356 077	358 732	360 728	361 827	362 666	363 459	364 396	364 599
Females	376 845	378 528	380 840	382 728	383 806	384 022	384 064	384 211	383 773	381 350
Age distribution:										
Percentage aged 0-4	5.7	5.5	5.9	5.9	5.9	5.8	5.8	6.0	6.1	6.2
Percentage aged 5-14	13.5	12.3	11.1	11.3	11.8	11.8	11.6	11.6	12.1	12.4
Percentage aged 15-24	14.0	13.7	13.5	12.3	11.1	11.3	11.8	11.8	11.7	12.2
Percentage aged 60 or over	19.0	20.2	20.4	21.5	23.0	24.8	26.4	27.6	28.8	29.2
Percentage aged 65 or over	13.9	14.7	15.7	15.8	16.8	18.2	19.8	21.2	22.7	23.2
Percentage of women aged 15-49	48.6	48.5	47.6	45.4	43.2	41.8	40.8	39.9	38.3	39.6
Median age (years)	36.1	37.6	38.9	39.9	40.9	41.7	42.3	42.9	42.3	41.3

	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2025-2030	2030-2040	2040-2050
Population change per year (thousands)	760	1 041	908	615	263	176	188	50	- 222
Population growth rate (percentage)	0.10	0.14	0.12	0.08	0.04	0.02	0.03	0.01	- 0.03
Crude birth rate (per 1,000 population)	11.1	11.9	12.0	11.9	11.6	11.8	12.0	12.3	12.4
Crude death rate (per 1,000 population)	11.3	11.5	11.5	11.7	11.8	11.9	12.1	12.6	13.1
Net migration rate (per 1,000 population)	1.3	1.0	0.7	0.6	0.5	0.4	0.4	0.4	0.4
Total fertility rate (per woman)	1.53	1.68	1.78	1.88	1.99	2.07	2.12	2.16	2.17
Gross reproduction rate (per woman)	0.74	0.82	0.87	0.92	0.97	1.01	1.03	1.05	1.06
Net reproduction rate (per woman)	0.73	0.80	0.85	0.90	0.95	0.99	1.02	1.04	1.05

D. LOW-VARIANT PROJECTIONS

	1995	2000	2005	2010	2015	2020	2025	2030	2040	2050
Population (thousands)										
Total	727 912	727 358	722 580	715 438	705 509	691 970	675 010	655 025	606 842	549 852
Males	351 067	350 952	348 725	345 388	340 716	334 198	325 891	315 959	291 949	264 120
Females	376 845	376 406	373 855	370 050	364 794	357 772	349 118	339 067	314 893	285 732
Age distribution:										
Percentage aged 0-4	5.7	4.9	4.6	4.5	4.3	4.1	3.8	3.6	3.4	3.2
Percentage aged 5-14	13.5	12.4	10.7	9.7	9.3	9.2	8.7	8.2	7.6	7.3
Percentage aged 15-24	14.0	13.8	13.7	12.7	11.1	10.1	9.8	9.7	9.0	8.4
Percentage aged 60 or over	19.0	20.3	20.8	22.3	24.3	26.7	29.2	31.5	35.5	39.6
Percentage aged 65 or over	13.9	14.8	16.0	16.4	17.7	19.6	21.9	24.2	28.0	31.5
Percentage of women aged 15-49	48.6	48.8	48.5	47.0	44.8	42.9	41.2	39.6	35.6	33.9
Median age (years)	36.1	37.8	39.6	41.2	42.7	44.3	46.0	47.6	50.8	52.6

	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2025-2030	2030-2040	2040-2050
Population change per year (thousands)	-111	-956	- 1 428	- 1 986	- 2 708	- 3 392	- 3 997	- 4 818	- 5 699
Population growth rate (percentage)	- 0.02	- 0.13	- 0.20	- 0.28	- 0.39	- 0.50	- 0.60	- 0.76	- 0.99
Crude birth rate (per 1,000 population)	9.9	9.2	9.1	8.7	8.1	7.6	7.2	6.8	6.4
Crude death rate (per 1,000 population)	11.3	11.6	11.8	12.1	12.5	13.0	13.6	14.8	16.7
Net migration rate (per 1,000 population)	1.3	1.0	0.7	0.6	0.5	0.4	0.4	0.4	0.5
Total fertility rate (per woman)	1.36	1.29	1.31	1.33	1.34	1.34	1.34	1.34	1.35
Gross reproduction rate (per woman)	0.66	0.63	0.64	0.65	0.65	0.65	0.65	0.65	0.66
Net reproduction rate (per woman)	0.65	0.62	0.63	0.64	0.64	0.64	0.64	0.65	0.65

E. CONSTANT-VARIANT PROJECTIONS

	1995	2000	2005	2010	2015	2020	2025	2030	2040	2050
Population (thousands)										
Total	727 912	732 647	734 946	734 282	730 261	722 905	713 259	701 568	670 700	631 047

	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2025-2030	2030-2040	2040-2050
Population growth rate (percentage)	0.13	0.06	- 0.02	- 0.11	- 0.20	- 0.27	- 0.33	- 0.45	- 0.61
Crude birth rate (per 1,000 population)	11.3	11.1	10.7	10.1	9.5	9.3	9.1	8.8	8.4
Crude death rate (per 1,000 population)	11.3	11.5	11.6	11.8	12.1	12.4	12.8	13.7	14.9

Source: United Nations Population Division, *World Population Prospects: The 1998 Revision*.

TABLE A.18. EUROPE, REPLACEMENT MIGRATION SCENARIOS

EUROPE

Scenario	I	II	III	IV	V	*VI*
Period	Medium variant	Medium variant with zero migration	Constant total population	Constant age group 15-64	Ratio 15-64/65+ not less than 3.0	*Constant ratio 15-64/65 years or older*
			A. Average annual net migration (thousands)			
1995-2000	950	0	854	0	0	*5 844*
2000-2005	757	0	1 063	0	0	*12 410*
2005-2010	535	0	1 046	293	0	*1 868*
2010-2015	458	0	1 150	3 642	0	*17 234*
2015-2020	377	0	1 478	4 696	0	*24 901*
2020-2025	305	0	1 879	4 847	0	*29 817*
2025-2030	265	0	2 199	4 316	15 049	*30 837*
2030-2035	265	0	2 371	3 511	11 725	*30 110*
2035-2040	265	0	2 519	3 489	8 922	*34 504*
2040-2045	265	0	2 665	3 530	6 020	*38 863*
2045-2050	265	0	2 803	3 945	5 293	*50 841*
Grand total 1995-2050	23 530	0	100 137	161 346	235 044	*1 386 151*
			B. Total population (thousands)			
1995	727 912	727 912	727 912	727 912	727 912	*727 912*
2000	728 887	723 482	727 912	723 482	723 434	*753 810*
2005	727 431	717 671	727 912	717 671	717 649	*814 445*
2010	724 242	711 598	727 912	713 122	711 623	*824 271*
2015	719 307	704 660	727 912	725 305	704 731	*913 174*
2020	711 909	695 650	727 912	742 496	695 760	*1 046 692*
2025	702 335	684 055	727 912	759 766	684 189	*1 212 912*
2030	690 976	670 167	727 912	773 668	749 368	*1 392 793*
2035	677 745	654 730	727 912	783 008	802 725	*1 576 523*
2040	662 541	637 917	727 912	791 587	844 398	*1 789 486*
2045	645 648	619 792	727 912	799 739	871 749	*2 032 569*
2050	627 691	600 464	727 912	809 399	894 776	*2 346 459*
			C. Age group 15-64 (thousands)			
1995	487 110	487 110	487 110	487 110	487 110	*487 110*
2000	494 102	492 142	495 287	492 142	492 222	*513 673*
2005	496 449	492 555	499 872	492 555	492 680	*561 570*
2010	496 671	491 475	503 224	492 555	491 630	*572 861*
2015	485 578	477 950	494 817	492 555	478 105	*628 831*
2020	469 838	459 414	482 880	492 555	459 554	*712 731*
2025	451 599	438 874	470 673	492 555	438 988	*818 857*
2030	432 691	418 796	460 324	492 555	474 437	*935 364*
2035	414 960	400 452	452 463	492 555	504 056	*1 056 366*
2040	397 473	381 771	444 939	492 555	526 638	*1 196 976*
2045	380 886	363 446	438 583	492 555	542 098	*1 358 048*
2050	364 277	345 100	432 959	492 555	556 871	*1 564 343*
			D. Potential support ratio 15-64/65 or older			
1995	4.81	4.81	4.81	4.81	4.81	*4.81*
2000	4.60	4.65	4.67	4.65	4.66	*4.81*
2005	4.29	4.35	4.40	4.35	4.36	*4.81*
2010	4.24	4.30	4.38	4.31	4.31	*4.81*
2015	3.89	3.92	4.03	4.02	3.93	*4.81*
2020	3.47	3.46	3.60	3.66	3.47	*4.81*
2025	3.06	3.03	3.20	3.33	3.03	*4.81*
2030	2.73	2.70	2.90	3.08	3.00	*4.81*
2035	2.50	2.47	2.71	2.92	3.00	*4.81*
2040	2.34	2.30	2.56	2.81	3.00	*4.81*
2045	2.21	2.16	2.46	2.72	3.00	*4.81*
2050	2.11	2.04	2.38	2.62	3.00	*4.81*

TABLE A.18 (*continued*)

EUROPE

Scenario	I	II	III	IV	V	*VI*
Period	Medium variant	Medium variant with zero migration	Constant total population	Constant age group 15-64	Ratio 15-64/65+ not less than 3.0	*Constant ratio 15-64/65 years or older*
			E. Age group 65 or older (thousands)			
1995	101 338	101 338	101 338	101 338	101 338	*101 338*
2000	107 439	105 831	105 982	105 831	105 712	*106 865*
2005	115 588	113 249	113 639	113 249	113 117	*116 829*
2010	117 185	114 231	114 912	114 283	114 119	*119 178*
2015	124 910	121 798	122 842	122 522	121 730	*130 822*
2020	135 491	132 589	134 135	134 409	132 569	*148 276*
2025	147 524	144 774	147 081	147 993	144 801	*170 355*
2030	158 482	155 357	158 824	160 149	158 146	*194 593*
2035	165 668	162 033	167 217	168 622	168 019	*219 766*
2040	170 119	166 178	173 647	175 250	175 546	*249 019*
2045	172 046	168 008	178 182	180 882	180 699	*282 528*
2050	172 985	168 986	182 222	187 704	185 624	*325 446*
			F. Percentage in age group 65 or older			
1995	13.9	13.9	13.9	13.9	13.9	*13.9*
2000	14.7	14.6	14.6	14.6	14.6	*14.2*
2005	15.9	15.8	15.6	15.8	15.8	*14.3*
2010	16.2	16.1	15.8	16.0	16.0	*14.5*
2015	17.4	17.3	16.9	16.9	17.3	*14.3*
2020	19.0	19.1	18.4	18.1	19.1	*14.2*
2025	21.0	21.2	20.2	19.5	21.2	*14.0*
2030	22.9	23.2	21.8	20.7	21.1	*14.0*
2035	24.4	24.7	23.0	21.5	20.9	*13.9*
2040	25.7	26.1	23.9	22.1	20.8	*13.9*
2045	26.6	27.1	24.5	22.6	20.7	*13.9*
2050	27.6	28.1	25.0	23.2	20.7	*13.9*
			G. Age group 0-14 (thousands)			
1995	139 464	139 464	139 464	139 464	139 464	*139 464*
2000	127 346	125 509	126 643	125 509	125 500	*133 272*
2005	115 394	111 867	114 402	111 867	111 852	*136 046*
2010	110 386	105 892	109 776	106 284	105 873	*132 231*
2015	108 819	104 911	110 254	110 227	104 897	*153 521*
2020	106 579	103 647	110 897	115 532	103 636	*185 685*
2025	103 212	100 408	110 158	119 218	100 400	*223 700*
2030	99 803	96 015	108 765	120 963	116 785	*262 836*
2035	97 117	92 245	108 233	121 831	130 651	*300 391*
2040	94 948	89 968	109 326	123 782	142 215	*343 491*
2045	92 717	88 338	111 147	126 301	148 951	*391 993*
2050	90 430	86 378	112 731	129 140	152 282	*456 670*
			H. Potential support ratio in 2050, by age of entry into non-working-age population			
Age						
65	2.11	2.04	2.38	2.62	3.00	*4.81*
70	3.13	3.04	3.53	3.93	4.38	*7.36*
75	4.88	4.77	5.53	6.15	6.75	*11.94*
80	8.36	8.18	9.52	10.52	11.49	*21.44*

NOTE: The six scenarios can be described briefly as follows:

I – Corresponds to the medium variant of the official United Nations population projections (*World Population Prospects, 1998 Revision*).
II – This scenario amends the medium variant by assuming no migration after 1995.
III – This scenario keeps the total population figure constant at the highest level that it would reach in the absence of migration after 1995.
IV – This scenario keeps the number of persons aged 15-64 constant at the highest level that it would reach in the absence of migration after 1995.
V – This scenario prevents the ratio of persons aged 15-64 to persons aged 65 and above from falling below 3.0.
VI – This scenario keeps the ratio of persons aged 15-64 and above at the highest level that it would reach in the absence of migration after 1995. This scenario is considered to be demographically unrealistic.

TABLE A.19. EUROPEAN UNION, *1998 REVISION*

EUROPEAN UNION

A. ESTIMATES

Indicator	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995
Population (thousands)										
Total	296151	305088	315857	330279	340576	349313	355421	358732	365235	371937
Males	142059	146694	152085	159683	165057	169501	172616	174195	177802	181615
Females	154092	158394	163772	170595	175519	179812	182806	184537	187432	190322
Sex ratio (per 100 females)	92.2	92.6	92.9	93.6	94	94.3	94.4	94.4	94.9	95.4
Age distribution:										
Percentage aged 0-4	8.7	8.3	8.5	8.8	8.3	7.3	6.5	6.1	5.9	5.6
Percentage aged 5-14	15.8	15.9	16.1	15.7	16.4	16.5	15.2	13.4	12.3	11.8
Percentage aged 15-24	15.4	15.1	14.6	14.7	14.8	15	15.8	16.3	14.9	13.3
Percentage aged 60 or over	13.9	14.6	15.5	16.5	17.6	18.3	17.9	19	20.1	20.8
Percentage aged 65 or over	9.5	10	10.6	11.2	12.2	13.1	13.9	13.6	14.7	15.5
Percentage of women aged 15-49	50.1	48.7	46.7	45.6	45.8	45.7	46.8	48.1	48.4	48.4
Median age (years)	32	32.3	32.8	32.8	32.9	33.1	33.7	34.8	36.1	37.3
Population density (per sq km)	91	94	97	102	105	108	110	111	113	115

	1950-1955	1955-1960	1960-1965	1965-1970	1970-1975	1975-1980	1980-1985	1985-1990	1990-1995
Population change per year (thousands)	1787	2154	2884	2060	1747	1222	662	1301	1340
Births per year (thousands)	5390	5587	6037	5900	5166	4620	4423	4330	4165
Deaths per year (thousands)	3289	3340	3474	3636	3706	3742	3717	3704	3835
Population growth rate (percentage)	0.59	0.69	0.89	0.61	0.51	0.35	0.19	0.36	0.36
Crude birth rate (per 1,000 population)	17.9	18	18.7	17.6	15	13.1	12.4	12	11.3
Crude death rate (per 1,000 population)	10.9	10.8	10.8	10.8	10.7	10.6	10.4	10.2	10.4
Total fertility rate (per woman)	2.39	2.52	2.69	2.52	2.14	1.86	1.69	1.58	1.5
Gross reproduction rate (per woman)	1.16	1.22	1.31	1.23	1.04	0.9	0.82	0.77	0.73
Net reproduction rate (per woman)	1.07	1.13	1.23	1.16	1	0.87	0.8	0.75	0.72
Infant mortality rate (per 1,000 births)	48	39	32	26	21	15	11	9	7
Life expectancy at birth (years)									
Males	64.7	66.6	67.6	68.2	68.8	69.9	71.1	72.3	73.3
Females	69.2	71.7	73.2	74.2	75	76.5	77.7	78.9	79.7
Both sexes combined	67	69.2	70.4	71.2	71.9	73.2	74.4	75.7	76.5

B. MEDIUM-VARIANT PROJECTIONS

	1995	2000	2005	2010	2015	2020	2025	2030	2040	2050
Population (thousands)										
Total	371937	375276	376478	375694	373831	371125	367342	362201	348281	331307
Males	181615	183591	184472	184287	183509	182257	180401	177808	170702	162314
Females	190322	191685	192006	191407	190322	188868	186941	184394	177579	168993
Sex ratio (per 100 females)	95.4	95.8	96.1	96.3	96.4	96.5	96.5	96.4	96.1	96
Age distribution:										
Percentage aged 0-4	5.6	5.2	4.9	4.7	4.7	4.8	4.7	4.7	4.6	4.7
Percentage aged 5-14	11.8	11.4	10.8	10.2	9.7	9.6	9.7	9.7	9.6	9.7
Percentage aged 15-24	13.3	12.3	11.9	11.6	11	10.4	10	10	10.3	10.2
Percentage aged 60 or over	20.8	21.9	22.9	24.5	26.1	28.1	30.5	32.8	34.9	35.3
Percentage aged 65 or over	15.5	16.4	17.5	18.3	19.8	21.2	23	25.2	28.4	28.9
Percentage in school ages 6-11	7.1	6.8	6.4	6	5.8	5.7	5.8	5.8	5.7	5.8
Percentage in school ages 12-14	3.6	3.5	3.4	3.2	3	2.9	2.9	3	3	2.9
Percentage in school ages 15-17	3.7	3.6	3.5	3.4	3.1	3	2.9	3	3	3
Percentage in school ages 18-23	8.1	7.4	7.2	7.1	6.7	6.3	6.1	6	6.2	6.2
Percentage of women aged 15-49	48.4	47.5	46.5	45.1	42.7	40.3	38.5	37.5	36.4	36.1
Median age (years)	37.3	38.9	40.7	42.6	44.2	45.5	46.4	47.1	48.1	47.9
Population density (per sq km)	115	116	116	116	115	114	113	112	107	102

	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2025-2030	2030-2040	2040-2050
Population change per year (thousands)	668	240	-157	-373	-541	-757	-1028	-1392	-1697
Births per year (thousands)	3892	3686	3555	3539	3548	3482	3384	3250	3167
Deaths per year (thousands)	3799	3916	4057	4219	4363	4488	4622	4852	5074
Net migration per year (thousands)	574	470	346	308	274	250	210	210	210
Population growth rate (percentage)	0.18	0.06	-0.04	-0.1	-0.15	-0.2	-0.28	-0.39	-0.5
Crude birth rate (per 1,000 population)	10.4	9.8	9.5	9.4	9.5	9.4	9.3	9.1	9.3
Crude death rate (per 1,000 population)	10.2	10.4	10.8	11.3	11.7	12.2	12.7	13.6	14.9
Net migration rate (per 1,000 population)	1.5	1.3	0.9	0.8	0.7	0.7	0.6	0.6	0.6
Total fertility rate (per woman)	1.44	1.45	1.5	1.57	1.64	1.69	1.74	1.78	1.8
Gross reproduction rate (per woman)	0.7	0.71	0.73	0.76	0.8	0.82	0.85	0.86	0.87
Net reproduction rate (per woman)	0.69	0.7	0.72	0.75	0.79	0.82	0.84	0.86	0.87
Infant mortality rate (per 1,000 births)	6	6	6	6	5	5	5	5	5
Mortality under age 5 (per 1,000 births)	7.6	7.1	6.8	6.6	6.3	6	5.9	5.6	5.3
Life expectancy at birth (years)									
Males	74.3	75.1	75.7	76.2	76.8	77.3	77.7	78.4	79.2
Females	80.7	81.3	81.8	82.3	82.7	83.2	83.6	84.2	85
Both sexes combined	77.6	78.2	78.8	79.3	79.7	80.2	80.7	81.3	82

Source: United Nations Population Division, *World Population Prospects: The 1998 Revision.*

TABLE A.19 (*continued*)

EUROPEAN UNION

C. HIGH-VARIANT PROJECTIONS

	1995	2000	2005	2010	2015	2020	2025	2030	2040	2050
Population (thousands)										
Total	371937	376210	379928	382168	383515	384340	384866	384837	383622	381264
Males	181615	184071	186244	187613	188483	189044	189399	189429	188840	187941
Females	190322	192139	193684	194555	195032	195296	195467	195408	194782	193323
Age distribution:										
Percentage aged 0-4	5.6	5.4	5.5	5.4	5.4	5.5	5.6	5.7	5.9	6.1
Percentage aged 5-14	11.8	11.4	11	10.9	10.9	10.9	11	11.2	11.6	12.1
Percentage aged 15-24	13.3	12.2	11.8	11.4	11	11	11	11	11.4	11.8
Percentage aged 60 or over	20.8	21.8	22.7	24.1	25.5	27.1	29.1	30.9	31.7	30.6
Percentage aged 65 or over	15.5	16.4	17.3	18	19.3	20.5	21.9	23.7	25.8	25.1
Percentage of women aged 15-49	48.4	47.4	46.1	44.3	41.9	39.8	38.4	37.8	37.5	38.5
Median age (years)	37.3	38.8	40.5	42	43.3	44.2	44.6	44.6	43.9	42.5

	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2025-2030	2030-2040	2040-2050
Population change per year (thousands)	855	744	448	269	165	105	-6	-121	-236
Population growth rate (percentage)	0.23	0.2	0.12	0.07	0.04	0.03	0	-0.03	-0.06
Crude birth rate (per 1,000 population)	10.9	11.1	10.9	10.9	11.1	11.3	11.5	11.8	12.2
Crude death rate (per 1,000 population)	10.2	10.4	10.7	11	11.4	11.7	12	12.7	13.3
Net migration rate (per 1,000 population)	1.5	1.2	0.9	0.8	0.7	0.7	0.5	0.5	0.5
Total fertility rate (per woman)	1.51	1.65	1.75	1.86	1.96	2.06	2.12	2.18	2.2
Gross reproduction rate (per woman)	0.73	0.8	0.85	0.9	0.95	1	1.03	1.06	1.07
Net reproduction rate (per woman)	0.72	0.79	0.84	0.89	0.94	0.99	1.02	1.05	1.06

D. LOW-VARIANT PROJECTIONS

	1995	2000	2005	2010	2015	2020	2025	2030	2040	2050
Population (thousands)										
Total	371937	374518	374056	371434	367102	361188	353666	344232	320436	292104
Males	181615	183201	183227	182099	180053	177155	173380	168583	156411	142204
Females	190322	191317	190829	189335	187049	184033	180286	175649	164025	149900
Age distribution:										
Percentage aged 0-4	5.6	5	4.5	4.3	4.1	4	3.8	3.6	3.4	3.4
Percentage aged 5-14	11.8	11.5	10.7	9.6	9	8.7	8.5	8.2	7.6	7.3
Percentage aged 15-24	13.3	12.3	12	11.7	11	10	9.4	9.2	9	8.5
Percentage aged 60 or over	20.8	21.9	23	24.8	26.6	28.8	31.7	34.5	37.9	40
Percentage aged 65 or over	15.5	16.4	17.6	18.6	20.1	21.8	23.8	26.5	30.9	32.7
Percentage of women aged 15-49	48.4	47.6	46.8	45.5	43.2	40.7	38.8	37.5	35.4	33.6
Median age (years)	37.3	39	40.9	42.9	44.8	46.4	47.8	49.1	51.3	52.9

	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2025-2030	2030-2040	2040-2050
Population change per year (thousands)	516	-92	-524	-866	-1183	-1504	-1887	-2380	-2833
Population growth rate (percentage)	0.14	-0.02	-0.14	-0.23	-0.32	-0.42	-0.54	-0.72	-0.93
Crude birth rate (per 1,000 population)	10	9	8.5	8.2	8	7.6	7.2	6.8	6.6
Crude death rate (per 1,000 population)	10.2	10.5	10.9	11.4	12	12.5	13.2	14.6	16.5
Net migration rate (per 1,000 population)	1.5	1.3	0.9	0.8	0.8	0.7	0.6	0.6	0.7
Total fertility rate (per woman)	1.38	1.32	1.34	1.35	1.35	1.36	1.36	1.37	1.37
Gross reproduction rate (per woman)	0.67	0.64	0.65	0.66	0.66	0.66	0.66	0.66	0.67
Net reproduction rate (per woman)	0.66	0.63	0.64	0.65	0.65	0.65	0.66	0.66	0.66

E. CONSTANT-VARIANT PROJECTIONS

	1995	2000	2005	2010	2015	2020	2025	2030	2040	2050
Population (thousands)										
Total	371937	376119	378012	377362	374839	370817	365477	358609	340395	317555

	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2025-2030	2030-2040	2040-2050
Population growth rate (percentage)	0.22	0.1	-0.03	-0.13	-0.22	-0.29	-0.38	-0.52	-0.69
Crude birth rate (per 1,000 population)	10.9	10.1	9.5	9.1	8.8	8.6	8.4	8.1	7.8
Crude death rate (per 1,000 population)	10.2	10.4	10.7	11.2	11.7	12.2	12.8	13.9	15.4

Source: United Nations Population Division, *World Population Prospects: The 1998 Revision.*

TABLE A.20. EUROPEAN UNION, REPLACEMENT MIGRATION SCENARIOS

EUROPEAN UNION

Scenario	I	II	III	IV	V	*VI*
Period	Medium variant	Medium variant with zero migration	Constant total population	Constant age group 15-64	Ratio 15-64/65+ not less than 3.0	*Constant ratio 15-64/65 years or older*
			A. Average annual net migration (thousands)			
1995-2000	574	0	0	46	0	*5 302*
2000-2005	470	0	263	396	0	*6 171*
2005-2010	346	0	521	545	0	*5 095*
2010-2015	308	0	663	1 596	0	*9 012*
2015-2020	274	0	742	1 938	417	*9 557*
2020-2025	250	0	869	2 424	8 550	*12 947*
2025-2030	210	0	1 032	2 814	10 210	*18 312*
2030-2035	210	0	1 216	2 407	8 176	*20 346*
2035-2040	210	0	1 351	1 593	3 376	*18 724*
2040-2045	210	0	1 416	1 063	0	*16 483*
2045-2050	210	0	1 418	1 097	0	*18 153*
Grand total 1995-2050	16 361	0	47 456	79 605	153 646	*700 506*
			B. Total population (thousands)			
1995	371 937	371 937	371 937	371 937	371 937	*371 937*
2000	375 276	372 440	372 440	372 680	372 440	*400 089*
2005	376 478	371 065	372 440	373 390	371 065	*433 063*
2010	375 694	368 232	372 440	373 590	368 232	*461 257*
2015	373 831	364 428	372 440	378 554	364 428	*510 650*
2020	371 125	359 936	372 440	385 344	362 130	*565 699*
2025	367 342	354 500	372 440	394 551	401 916	*641 056*
2030	362 201	347 891	372 440	405 592	453 687	*748 324*
2035	355 783	339 947	372 440	414 173	498 026	*871 833*
2040	348 281	330 878	372 440	418 003	518 590	*992 383*
2045	340 013	321 049	372 440	418 422	520 307	*1 104 897*
2050	331 307	310 839	372 440	418 509	519 965	*1 228 341*
			C. Age group 15-64 (thousands)			
1995	249 382	249 382	249 382	249 382	249 382	*249 382*
2000	251 299	249 213	249 213	249 382	249 213	*268 773*
2005	251 625	247 737	248 709	249 382	247 737	*291 712*
2010	250 909	245 587	248 563	249 382	245 587	*311 918*
2015	245 947	239 387	245 055	249 382	239 387	*344 093*
2020	239 216	231 427	240 285	249 382	232 969	*379 072*
2025	230 090	221 083	233 826	249 382	254 334	*426 112*
2030	218 698	208 594	226 054	249 382	282 380	*492 818*
2035	207 975	196 861	219 920	249 382	306 897	*570 480*
2040	199 716	187 775	217 056	249 382	319 230	*647 667*
2045	193 479	180 834	216 656	249 382	322 718	*721 736*
2050	187 851	174 470	216 929	249 382	325 575	*803 974*
			D. Potential support ratio 15-64/65 or older			
1995	4.31	4.31	4.31	4.31	4.31	*4.31*
2000	4.08	4.06	4.06	4.06	4.06	*4.31*
2005	3.83	3.80	3.81	3.82	3.80	*4.31*
2010	3.64	3.60	3.64	3.65	3.60	*4.31*
2015	3.33	3.28	3.34	3.39	3.28	*4.31*
2020	3.04	2.98	3.07	3.17	3.00	*4.31*
2025	2.73	2.66	2.78	2.94	3.00	*4.31*
2030	2.39	2.32	2.48	2.69	3.00	*4.31*
2035	2.14	2.07	2.26	2.51	3.00	*4.31*
2040	2.02	1.94	2.18	2.43	3.00	*4.31*
2045	1.97	1.90	2.18	2.41	3.01	*4.31*
2050	1.96	1.89	2.21	2.41	3.03	*4.31*

TABLE A.20 (*continued*)

EUROPEAN UNION

Scenario	I	II	III	IV	V	*VI*
Period	Medium variant	Medium variant with zero migration	Constant total population	Constant age group 15-64	Ratio 15-64/65+ not less than 3.0	*Constant ratio 15-64/65 years or older*
			E. Age group 65 or older (thousands)			
1995	57 815	57 815	57 815	57 815	57 815	*57 815*
2000	61 596	61 349	61 349	61 357	61 349	*62 310*
2005	65 725	65 179	65 227	65 263	65 179	*67 628*
2010	68 903	68 186	68 348	68 400	68 186	*72 312*
2015	73 844	72 975	73 311	73 547	72 975	*79 772*
2020	78 599	77 580	78 147	78 683	77 656	*87 881*
2025	84 326	83 096	83 973	84 964	84 778	*98 786*
2030	91 378	89 889	91 199	92 808	94 127	*114 250*
2035	97 012	95 173	97 123	99 413	102 299	*132 255*
2040	99 073	96 772	99 665	102 672	106 410	*150 149*
2045	98 024	95 184	99 381	103 268	107 144	*167 321*
2050	95 600	92 240	98 067	103 280	107 603	*186 386*
			F. Percentage in age group 65 or older			
1995	15.5	15.5	15.5	15.5	15.5	*15.5*
2000	16.4	16.5	16.5	16.5	16.5	*15.6*
2005	17.5	17.6	17.5	17.5	17.6	*15.6*
2010	18.3	18.5	18.4	18.3	18.5	*15.7*
2015	19.8	20.0	19.7	19.4	20.0	*15.6*
2020	21.2	21.6	21.0	20.4	21.4	*15.5*
2025	23.0	23.4	22.5	21.5	21.1	*15.4*
2030	25.2	25.8	24.5	22.9	20.7	*15.3*
2035	27.3	28.0	26.1	24.0	20.5	*15.2*
2040	28.4	29.2	26.8	24.6	20.5	*15.1*
2045	28.8	29.6	26.7	24.7	20.6	*15.1*
2050	28.9	29.7	26.3	24.7	20.7	*15.2*
			G. Age group 0-14 (thousands)			
1995	64 740	64 740	64 740	64 740	64 740	*64 740*
2000	62 380	61 879	61 879	61 941	61 879	*69 006*
2005	59 127	58 149	58 504	58 745	58 149	*73 723*
2010	55 882	54 459	55 529	55 808	54 459	*77 027*
2015	54 040	52 066	54 074	55 625	52 066	*86 785*
2020	53 310	50 929	54 008	57 278	51 505	*98 747*
2025	52 926	50 320	54 641	60 204	62 805	*116 157*
2030	52 125	49 409	55 187	63 402	77 181	*141 256*
2035	50 796	47 913	55 397	65 378	88 831	*169 098*
2040	49 492	46 331	55 719	65 949	92 951	*194 567*
2045	48 510	45 031	56 403	65 772	90 445	*215 841*
2050	47 856	44 130	57 445	65 846	86 786	*237 981*
			H. Potential support ratio in 2050 by age at entry into non-working-age population			
Age						
65	1.96	1.89	2.21	2.41	3.03	*4.31*
70	2.77	2.66	3.12	3.43	4.24	*6.34*
75	4.12	3.94	4.62	5.09	6.20	*9.87*
80	6.81	6.50	7.61	8.37	10.07	*17.14*

NOTE: The six scenarios can be described briefly as follows:

I – Corresponds to the medium variant of the official United Nations population projections (*World Population Prospects, 1998 Revision*).
II – This scenario amends the medium variant by assuming no migration after 1995.
III – This scenario keeps the total population figure constant at the highest level that it would reach in the absence of migration after 1995.
IV – This scenario keeps the number of persons aged 15-64 constant at the highest level that it would reach in the absence of migration after 1995.
V – This scenario prevents the ratio of persons aged 15-64 to persons aged 65 and above from falling below 3.0.
VI – This scenario keeps the ratio of persons aged 15-64 and above at the highest level that it would reach in the absence of migration after 1995. This scenario is considered to be demographically unrealistic.