

Population Division  
Department of Economic and Social Affairs  
United Nations Secretariat

# Replacement Migration



United Nations

Population Division  
Department of Economic and Social Affairs  
United Nations Secretariat

# Replacement Migration:

## Is It a Solution to Declining and Ageing Populations ?



## **NOTE**

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, city or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries.

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.

ST/ESA/SER.A/206

UNITED NATIONS PUBLICATION

Sales No. E.01.XIII.19  
ISBN 92-1-151362-6

## 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](http://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.



## CONTENTS

	<i>Page</i>
Preface .....	iii
Explanatory notes .....	viii
Executive summary .....	1
<i>Chapter</i>	
I. OVERVIEW OF THE ISSUES .....	7
II. LITERATURE REVIEW .....	11
III. THE APPROACH: METHODOLOGY AND ASSUMPTIONS .....	15
A. The six scenarios .....	15
B. The impact of economic activity rates on support ratios .....	19
IV. RESULTS	
A. Overview.....	21
B. Country results .....	35
1. France.....	35
2. Germany.....	41
3. Italy .....	47
4. Japan .....	53
5. Republic of Korea .....	59
6. Russian Federation.....	65
7. United Kingdom of Great Britain and Northern Ireland .....	71
8. United States of America .....	77
9. Europe .....	83
10. European Union .....	89
V. CONCLUSIONS AND IMPLICATIONS .....	97
References .....	101
Selected bibliography.....	105

## TABLES

*No.*

1. Net number of migrants by country or region and scenario, 2000-2050.....	2
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.....	8
3. Values of the potential support ratio (PSR) by projection variant.....	9
4. Per cent distribution of net number of migrants by age and sex, model pattern.....	18
5. Total fertility rates, 1950 to 2050, by country or region .....	25
6. Total population (zero migration after 1995), 1950 to 2050, by country or region.....	26
7. Potential support ratio (zero migration after 1995), 1950 to 2050, by country or region.....	26
8. Net number of migrants, 1995-2050, by scenario and country or region .....	27

No.		Page
9.	Potential support ratio in 1995, and in 2050 by scenario and country or region .....	27
10.	Average annual net number of migrants between 2000 and 2050, per million inhabitants in 2000, by scenario and country or region .....	28
11.	Per cent of post-1995 migrants and their descendants in total population in 2050, by scenario and country or region .....	28
12.	Net annual migration flows, 1990 to 1998 .....	29
13.	Migrant stock (foreign-born population), 1990 .....	29
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 .....	30
15.	Total population in 1995 and in 2050, and growth rates by scenario, by country or region .....	30
16.	Potential support ratios and active support ratios, 1998 and 2050 .....	31
17.	Changes in support ratios .....	32
18.	Population indicators for France by period for each scenario .....	37
19.	Population indicators for Germany by period for each scenario .....	43
20.	Population indicators for Italy by period for each scenario .....	49
21.	Population indicators for Japan by period for each scenario .....	55
22.	Population indicators for the Republic of Korea by period for each scenario .....	61
23.	Population indicators for the Russian Federation by period for each scenario .....	67
24.	Population indicators for the United Kingdom of Great Britain and Northern Ireland by period for each scenario .....	73
25.	Population indicators for the United States of America by period for each scenario .....	79
26.	Population indicators for Europe by period for each scenario .....	85
27.	Population of the member countries of the European Union, 1995 and 2050, scenario I .....	105
28.	Population indicators for the European Union by period for each scenario .....	108

## FIGURES

No.		
1.	Average annual net number of migrants between 2000 and 2050 to maintain size of working-age population, per million inhabitants in 2000 .....	4
2.	Per cent change in total population for selected countries and regions, 2000-2050 .....	10
3.	Per cent distribution of male immigrants by age in Australia, Canada, United States and model pattern .....	17
4.	Per cent distribution of female immigrants by age in Australia, Canada, United States of America and model pattern .....	18
5.	Age-sex pyramid of immigrants, model pattern .....	19
6.	Average annual net number of migrants between 2000 and 2050 to maintain size of working-age population, per million inhabitants in 2000 .....	32
7.	Average annual net number of migrants between 2000 and 2050 by scenario for the European Union .....	33
8.	France: age-sex structures by scenario for 2000, 2025 and 2050 .....	38
9.	Population of France in 2050, indicating those who are post-1995 migrants and their descendants, by scenario .....	40
10.	Germany: age-sex structures by scenario for 2000, 2025 and 2050 .....	44
11.	Population of Germany in 2050, indicating those who are post-1995 migrants and their descendants, by scenario .....	46
12.	Italy: age-sex structures by scenario for 2000, 2025 and 2050 .....	50
13.	Population of Italy in 2050, indicating those who are post-1995 migrants and their descendants, by scenario .....	52
14.	Japan: age-sex structures by scenario for 2000, 2025 and 2050 .....	56

No.		Page
15.	Population of Japan in 2050, indicating those who are post-1995 migrants and their descendants, by scenario .....	58
16.	Republic of Korea: age-sex structures by scenario for 2000, 2025 and 2050 .....	62
17.	Population of the Republic of Korea in 2050, indicating those who are post-1995 migrants and their descendants, by scenario .....	64
18.	Russian Federation: age-sex structures by scenario for 2000, 2025 and 2050 .....	68
19.	Population of the Russian Federation in 2050, indicating those who are post-1995 migrants and their descendants, by scenario .....	70
20.	United Kingdom: age-sex structures by scenario for 2000, 2025 and 2050 .....	74
21.	Population of the United Kingdom in 2050, indicating those who are post-1995 migrants and their descendants, by scenario .....	76
22.	United States: age-sex structures by scenario for 2000, 2025 and 2050 .....	80
23.	Population of the United States in 2050, indicating those who are post-1995 migrants and their descendants, by scenario .....	82
24.	Europe: age-sex structures by scenario for 2000, 2025 and 2050 .....	86
25.	Population of Europe in 2050, indicating those who are post-1995 migrants and their descendants, by scenario .....	88
26.	Population of the European Union in 2050, indicating those who are post-1995 migrants and their descendants, by scenario .....	93
27.	European Union: age-sex structures by scenario for 2000, 2025 and 2050 .....	94

#### ANNEX TABLES

No.		
A.1.	France, <i>1998 Revision</i> .....	112
A.2.	France, replacement migration scenarios .....	114
A.3.	Germany, <i>1998 Revision</i> .....	116
A.4.	Germany, replacement migration scenarios .....	118
A.5.	Italy, <i>1998 Revision</i> .....	120
A.6.	Italy, replacement migration scenarios .....	122
A.7.	Japan, <i>1998 Revision</i> .....	124
A.8.	Japan, replacement migration scenarios .....	126
A.9.	Republic of Korea, <i>1998 Revision</i> .....	128
A.10.	Republic of Korea, replacement migration scenarios .....	130
A.11.	Russian Federation, <i>1998 Revision</i> .....	132
A.12.	Russian Federation, replacement migration scenarios .....	134
A.13.	United Kingdom of Great Britain and Northern Ireland, <i>1998 Revision</i> .....	136
A.14.	United Kingdom of Great Britain and Northern Ireland, replacement migration scenarios .....	138
A.15.	United States of America, <i>1998 Revision</i> .....	140
A.16.	United States of America, replacement migration scenarios .....	142
A.17.	Europe, <i>1998 Revision</i> .....	144
A.18.	Europe, replacement migration scenarios .....	146
A.19.	European Union, <i>1998 Revision</i> .....	148
A.20.	European Union, replacement migration scenarios .....	150

## **Explanatory notes**

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.