THE DEMOGRAPHY OF POPULATION AGEING

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An inevitable consequence of the demographic transition and the shift to lower fertility and mortality has been the evolution in the age structure of the world population. Many societies, especially in the more developed regions, have already attained older population age structures than have ever been seen in

(TABLE 2 HERE)

(FIGURE I HERE)

The oldest old, persons aged 80 years or older, currently number 70 million, the majority of whom live in more developed regions. Thirty-three million are estimated to be living in less developed regions. They make up about 1 per cent of the world's population and 3 per cent of the population of the more developed regions. This oldest age group is the fastest growing segment of the older population. By 2050, the number of the oldest old is projected to be five times as large as at present. By that date, the oldest old will be 4 per cent of the total world population, and in the more developed regions, one person out of 11 is projected to be aged 80 or older. In the less developed regions, 3 per cent of the population will be 80 years or older.

It is necessary to look beyond 2050 to see the full consequences for population ageing of ongoing trends towards lower fertility and mortality rates. A range of alternative scenarios presented in the United Nations long-range population projections (United Nations, 1999a) show that future populations will reach a significantly older age structure than the populations of the present, or even of the populations of 2050. Figure II shows projected trends in the proportion of the world's population aged 60 or older through the year 2150, from the medium fertility scenario, which assumes that fertility in all major areas will stabilize at replacement level around 2050, and that mortality rates will continue to improve. By 2150, persons aged 60 or older are projected to number 3.0 billion, nearly one person out of every three alive at that time. Over 1.2 billion people, or one in every 10 persons, will be aged 80 or older. Only 18 per cent of the population will be children aged under 15 years, as compared to 30 per cent at present.

(FIGURE II HERE)

Speed of ageing

The growth of the older population often receives attention in connection with the developed countries. However, the tempo of ageing is more rapid in the less developed regions than in the more developed regions (see figure III). Because rapid changes in age structure may be more difficult for societies to adjust to than change that is spread over a longer time horizon, the speed of population ageing has important implications for government policies, such as pension schemes, health care and economic growth. Figure IV shows, for selected countries, the dates when the population reached, or is expected to reach, the point when 7, 14 and 21 per cent of the population was aged 65 or older. (Currently, 6.9 per cent of the world's population is aged 65 or older.) Typically, the transition from 7 to 14 per cent took longer for countries that reached the 7 per cent

level at an earlier date. For example, France and Sweden, which reached the 7 per cent point before 1900, took 114 years and 82 years, respectively, to reach 14 per cent. That same transition required only 24 years in Japan, from 1970 to 1994. Several developing countries shown in figure IV will also make a rapid transition from 7 to 14 per cent aged 65 or older. Brazil, Indonesia, the Republic of Korea and Tunisia are projected to make this transition in a time-span of under 25 years, and the two most populous countries, China and India,

in the number of older women than of older men. Projected increases between 2000 and 2050 in the number of persons aged 60 or older are 636 million for men and 729 million for women in the world as a whole. Projected increases during the same period in the number of persons aged 80 or older are 116 million for men and 185 million for women.

Concomitant with dramatic improvements in average lifespan has been the widening differential over time between male and female longevity. By 1995-2000, the female advantage in life expectancy at birth has grown to almost eight years in more developed regions and three years in less developed regions. The advantage, however, diminishes during the life course and by age 60, the male-female differential has narrowed to four years in more developed regions and to only two years in less developed regions. At current mortality rates (for 1995-2000), almost 40 per cent of girls and about one quarter of boys born can expect to survive to the "oldest old" ages, 80 years or older. While the increased likelihood of surviving to older ages is obviously due to mortality declines at younger ages, recent decades have also seen significant mortality improvements among the older population, including the oldest old, and these trends so far have been more beneficial to women than to men (Kannisto, 1994).

At older ages, women are less likely to be married and more likely to be widowed than are men, not only because they survive on average to higher ages, but also because most women marry men several years older than themselves. While more than three quarters (79 per cent) of older men are married, on a global basis, less than one half (43 per cent) of older women are married (United Nations, 1999b). The longer-term effect of gender differences in marriage age on later widowhood is only one of many ways in which demographic, as well as economic and social circumstances in early life have diverging ramifications for men and women in old age.

Demographic causes of population ageing

The process of population ageing is determined primarily by trends in fertility rates and secondarily by mortality rates. Any population with a long history of high fertility has a "young" age structure, similar in its general features to the present age structure for the group of least developed countries (see figure V). The average age of the population starts to rise when fertility rates decline. For the period 1995-2000, 61 countries in the world, representing 44 per cent of the world's population, are at or below replacement fertility. By 2015, the world's population is projected to reach 7.2 billion, of which about two thirds will be living in countries at or below replacement fertility (United Nations, 1999c). The impact of mortality decline is more variable, depending on whether the decline in mortality operates mainly at younger or at older ages. In fact, the first stages of mortality decline have usually particularly benefited infants and children, and have often served to make the population younger. However, changes in mortality may assume a greater importance for

population ageing later in the demographic transition. In countries where mortality rates at young ages are already low, further declines have tended to affect mainly the adult and older ages, and have contributed to population ageing. For example, Caselli and Vallin (1990) have demonstrated the growing impact of mortality change in population projections of France and Italy. They concluded that even if Italian fertility remained at a very low level of 1.4 children per woman through the year 2040, more than half the increase in the proportion of the population aged 60 or older would be due to mortality change, and less than half to the earlier fertility trends.

(FIGURE V HERE)

Trends in dependency ratios

Demographic dependency ratios are used as approximate indicators of the relative sizes of the non-working-age and working-age populations. The youth-dependency ratio (the number of children per 100 persons of labour force age, ages 15-64 years) and the elderly-dependency ratio (the number aged 65 years or older per 100 persons of labour force age) indicate the dependency burden on workers and how the type of dependency shifts from children to older persons during the demographic transition. The potential economic implications of falling or rising burdens of demographic dependency have been an area of active research.

Since 1970, the youth-dependency ratio has been declining in all regions, while the over-65 dependency ratio is rising (see table 4). Trends for the total ratio in different countries and regions depend upon the relative size and speed of these countervailing trends in the older and younger components. In general, the total

effects take many years to play out. Four examples are shown in figure VI to illustrate a range of situations and trends:

Argentina has experienced a gradual fertility decline, with relatively minor fluctuations over a long period. It is projected to experience only minor changes in the total dependency ratio, which will remain near 60 over the entire period from 1970 to 2050.

In Italy, the total fertility rate plummeted after the mid-1970s to reach the unprecedentedly low level of 1.2 by the early 1990s. The total dependency ratio initially declined, but increases in the over-65 dependency ratio will dominate the trend into the future, and will produce an especially rapid rise in demographic dependency after 2020.

The Republic of Korea experienced a rapid fertility decline after 1970, and the total dependency ratio fell to an unusually low level of 39 by 2000. The overall ratio will not begin to rise appreciably until after 2015, but it will then increase rapidly.

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TABLE 1. ESTIMATED AND PROJECTED PERCENTAGE OF THE POPULATION IN SELECTED AGE GROUPS, BY REGION

Region	*1970*	*2000*	*2025*	*2050*
		Children: under age 15		
World total	37	30	23	20
More developed regions	26	18	16	15
Less developed regions	42	33	25	20
Least developed countries	44	42	35	24
Africa	45	42	35	24
Asia	40	30	22	19
Europe	25	17	15	14
Latin America and the Caribbean	42	32	24	20
Northern America	29	21	18	17
Oceania	32	25	21	19
		Youth: ages 15-24		
World total	18	18	15	13
More developed regions	17	14	11	11
Less developed regions	18	19	16	14
Least developed countries	18	20	20	17
Africa	18	20	20	17
Asia	18	18	15	13
Europe	16	14	10	10
Latin America and the Caribbean	19	20	16	13
Northern America	17	13	12	12
Oceania	18	15	14	13
		Older persons: ages 60 or over		
World total	8	10	15	22
More developed regions	15	20	28	33
Less developed regions	6	8	13	21
Least developed countries	5	5	6	12
Africa	5	5	6	12
Asia	6	9	15	24
Europe	15	20	28	35
Latin America and the Caribbean	6	8	14	22
Northern America	14	16	26	28
Oceania	11	13	20	24
		Oldest old: ages 80 or over		
World total	1	1	2	4
More developed regions	2	3	5	9
Less developed regions	0.4	1	1	3
Least developed countries	0.3	0.3	1	1
Africa	0.3	0.4	1	1
Asia	0.4	1	2	4
Europe	2	3	5	9
Latin America and the Caribbean	1	1	2	4
Northern America	2	3	4	8
Oceania	1	2	3	6

Source: *The Sex and Age Distribution of the World Populations: the 1998 Revision, volume II: Sex and Age* (United Nations publication, Sales No. E.99.XIII.8), medium variant projections.

TABLE 2. ESTIMATED AND PROJECTED REGIONAL DISTRIBUTION OF THE POPULATION AGED UNDER 15 YEARS AND THE POPULATION AGED 60 YEARS OR OVER - 1970, 2000 AND 2050

(Percentage)

Region	*Under age 15*			*Aged 60 or over*		
	1970	*2000*	*2050*	*1970*	*2000*	*2050*
World total	100	100	100	100	100	100
More developed regions	19	12	10	47	38	19
Less developed regions	81	88	90	53	62	81
Least developed countries	10	15	20	5	5	9
Africa	12	19	24	6	6	11
Asia	63	61	57	45	53	63
Eastern Asia	27	20	15	23	27	26
China	24	18	14	18	21	22
South-eastern Asia	9	9	9	5	6	9
South Central Asia	24	29	28	15	17	25
India	16	19	17	11	13	16
Western Asia	3	4	5	2	2	3

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TABLE 3. SEX RATIOS BY AGE IN THE MORE AND LESS DEVELOPED REGIONS, 2000
(*Men per 100 women*)

Age	*World*	*More developed regions*	*Less developed regions*
	For broad age groups		
Total	101	95	103
<15	106	105	106
15-59	103	101	104
60+	81	71	88
80+	53	44	64
	For 5-year groups, ages 60 or over		
60-64	94	87	97
65-69	89	82	93
70-74	81	72	86
75-79	69	59	78
80-84	60	51	69
85-89	48	41	59
90-94	36	32	46
95-99	27	23	37
100+	25	19	38

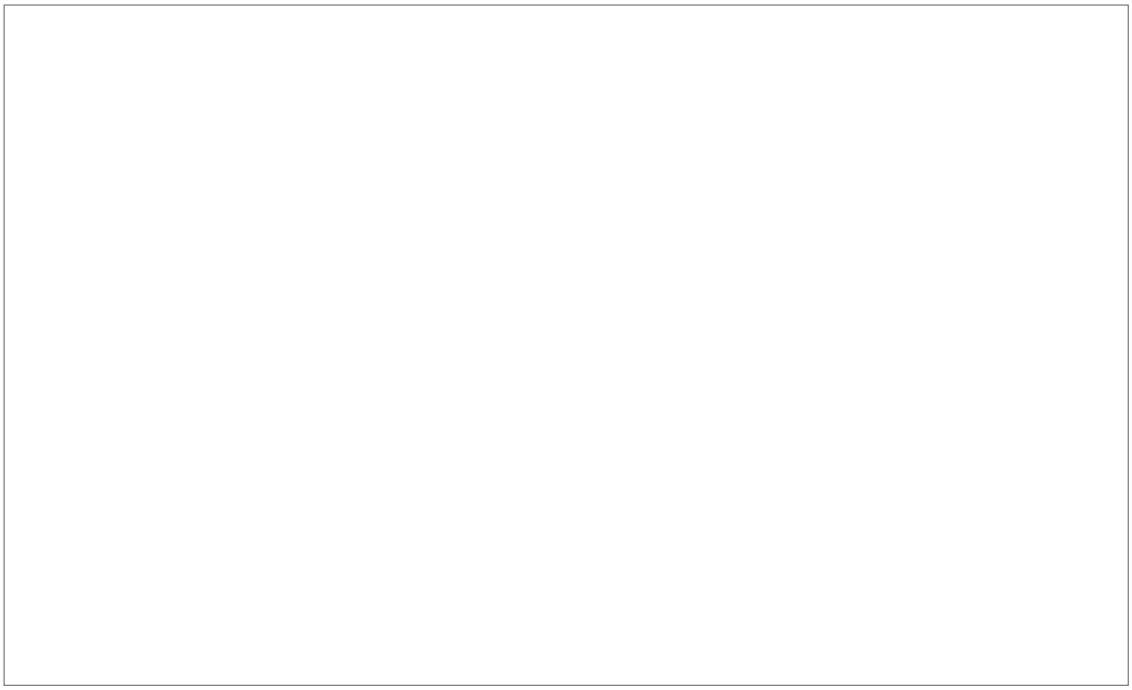
Source: The Sex and Age Distribution of the World Populations: the 1998 Revision, volume II: Sex and Age (United Nations publication, Sales No. E.99.XIII.8).

TABLE 4. TRENDS IN AGE-DEPENDENCY RATIOS, BY REGION - 1970 TO 2050
(Percentage)

Region	*1970*	*2000*	*2025*	*2050*
	Dependency ratio: total			
World total	75	58	51	56
More developed regions	56	48	58	70
Less developed regions	84	60	50	54
Least developed countries	90	82	63	47
Africa	92	84	63	47
Asia	80	56	48	57
Europe	56	48	56	72
Latin America and the Caribbean	87	59	50	58
Northern America	62	51	59	64
Oceania	65	54	56	60
	Under age 15			
World total	66	47	36	31
More developed regions	41	27	25	26
Less developed regions	77	52	37	31
Least developed countries	84	77	56	35
Africa	86	78	56	35
Asia	73	47	33	30
Europe	39	26	23	25
Latin America and the Caribbean	79	50	35	32
Northern America	46	32	29	28
Oceania	53	39	33	30
	Ages 65 or over			
World total	10	11	16	26
More developed regions	15	21	33	44
Less developed regions	7	8	13	23
Least developed countries	6	6	6	12
Africa	6	6	6	12
Asia	7	9	15	27
Europe	16	22	33	47
Latin America and the Caribbean	8	9	14	27
Northern America	16	19	30	36
Oceania	12	15	23	30

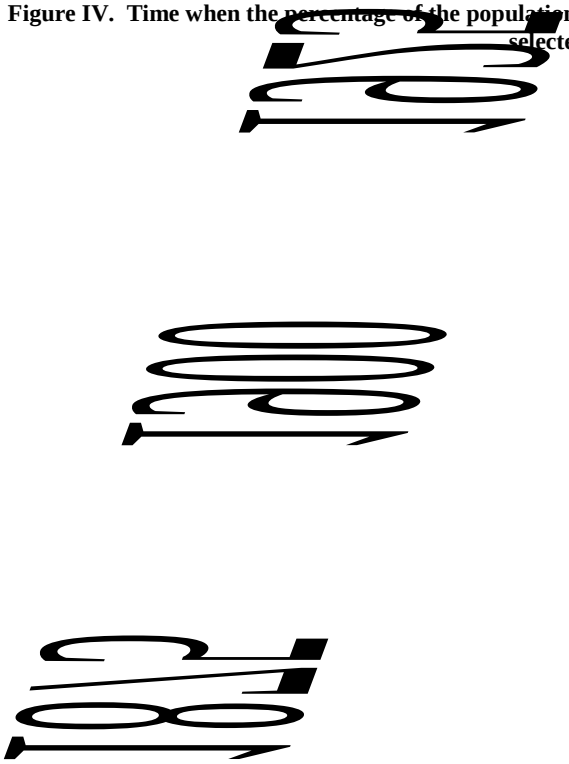
Note

Figure II. Percentage of world population by age group, medium scenario, 1950-2150



Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, Long-range world population projections, based on the 1998 revision (ESA/P/WP.153), 1999**.**

Figure IV. Time when the percentage of the population aged 65 or over reached or will reach 7, 14 and 21 per cent: selected countries



Note: For countries where the percentage aged over 65 years will reach 21 per cent after 2050, only the period between attainment of the 7 and 14 per cent points is shown.

Sources: The Sex and Age Distribution of the World Populations: the 1998 Revision, volume II: Sex and Age (United Nations publication, Sales No. E.99.XIII.8); United States Bureau of the Census, *An Aging World II,* In od Ir0.010.4(,41( )-11( )14.9(o69 0 TD-0.0 Popu(Ir0.0l10.4(,41(

Figure V. Population pyramids: age and sex distribution, 2000 and 2050