Chapter 2.
Numerical Growth

Changes in Age Composition

The Nation's Population Continues to Age; in 1994, Half the U.S. Population Was at Least 34 Years Old

A population's age composition can only change through the fundamental demographic processes of birth, death, and migration. Generally, changes in the number of births play the most important role in a country's overall age structure. As demographic processes alter a nation's age composition, associated political, economic, and social changes can be foreseen.

In 1860, half the population of the United States was under age 20, and most of the population was not expected to live to age 65. Such a young population is comparable to moderately high fertility populations found in the developing world today, such as those of Egypt and Mexico. The combination of high fertility and high mortality kept the U.S. a youthful nation. As fertility declined and the chance of survival improved, the U.S. population became progressively older. Even so, in 1950 half the population was still under age 30 years. The post-World War II "Baby Boom" was a high fertility period, from 1946 to 1964, and resulted in a brief "younging" of the population. However, since that time, the population has been gradually aging. In 1994, fewer than 1 in 4 (23 percent) persons were

under age 16 and half the population was 34 years of age or older.[1]

According to the Census Bureau's middle series projections,[2] half the population would be 37 or older in 2010 if levels of fertility, mortality, and net migration follow recent trends, and at least half would be 39 years old or older in 2030. Considering all ten alternative projection series published by the Census Bureau, the median age of the population ranges from 36 to 41 years in 2030.

Mortality changes have operated as a secondary influencing factor on the current age structure of the U.S. population. Mortality rates, by age, like fertility rates, fell during this century. Infant and maternal mortality rates declined profoundly as did deaths from infectious and parasitic diseases. Recent improvements in the chance

of survival at the end of the age spectrum have emerged as the most important factor in the growth of the oldest old.[3]

The age composition of international migration typically exerts the least influence on a nation's changing age distribution. Still, in the next century, our recent levels and composition of immigration to the United States (for example, young Hispanics and Asians) will become an increasingly important factor in the eventual rapid growth and greater diversity of the elderly population (65 years and over). Under the Census Bureau's middle series projection assumptions, net international migration will be responsible for about 8 percent of the total growth of the elderly population between 1992 and 2000. If actual international migration between 1992 and 2000 follows the Census Bureau's high migration series assumption, the contribution of net international migrants to the total growth of the elderly could be as high as 13 percent.

The "Baby-Boom" Generation Will Have a Dramatic Effect on the Growth of the Elderly

Seventy-five million babies were born in the United States from 1946 to 1964. The sheer magnitude of this human tidal wave comes into sharper focus when we realize that those born from 1946 to 1964 totaled 70 percent more people than were born during the preceding two decades. In 1994,

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[1] Official July 1, 1994 estimates are consistent with U.S. Bureau of the Census, 1990 Census of Population, Series CPH-L-74, "Modified and Actual Age, Sex, Race and Hispanic Origin Data." Age and race data in the CPH-L-74 series are drawn from 1990 census counts modified to correct anomalies in age reporting and to assign a specific race to those who marked "other races." Appendix C provides an explanation of the modifications. Throughout this report, counts of persons by age, sex, race, and Hispanic origin are from the modified series unless stated otherwise. For the elderly population, the differences in the two files are relatively minor. The White elderly population is larger in the CPH-L-74 series as a result of assignment of race for Hispanics who marked their race as "other race" on the 1990 census form.

[2] Throughout this report, projections for the United States for the year 2000 and beyond come from the following report: Jennifer Cheeseman Day, U.S. Bureau of the Census, *Projections of the Population of the United States, by Age, Sex, Race, and Hispanic Origin: 1993 to 2050*, Current Population Reports, P25–1104, Washington, DC, 1993. The Census Bureau produces several national projection series based on varying assumptions about the levels of fertility, mortality, and international migration. Unless stated otherwise, the projections used here are from the middle series.

[3] Ira Rosenwaike and Arthur Dolinsky, "The Changing Demographic Determinants of the Growth of the Extreme Aged," *The Gerontologist*, Vol. 27, No. 3, June 1987, pp. 275-280.

the Baby Boom was in their economically productive years (about ages 30 to 48) and represented nearly one-third of the U.S. population (figure 1-1). They also were raising families, the Baby Echo. The elderly population was one-eighth of the total population and numbered 33.2 million.

The elderly population has grown rapidly throughout the history of the country. During the 20-year period, 1990-2010, the elderly population will grow at a lower average annual growth rate than during any similar period since 1910 (figure 2-1). This low rate of growth is directly related to the low fertility of the 1930's. (Persons turning age 65 years between 1995 and 2005 were born in the 1930 to 1940 period.) This current low rate of change is slight relative to the approaching substantial elderly growth during the 2010-30 period. The coming high growth is the result of the entrance of the Baby-Boom cohorts into the 65 and over age category. While the high annual growth rate of the 2010-30 period is not without precedent, there will be an unparalleled increase in the absolute number of elderly persons.

Demographers have called out an early warning that the Baby-Boom generation is approaching the elderly ranks. American society has tried to adjust to the size and needs of the Baby-Boom generation throughout the stages of the life cycle. Just as this generation had an impact on the educational system (with "split shift" schools and youth in college) and the labor force (with job market pressures), the Baby-Boom cohorts will place tremendous strain on the myriad specialized services and programs required of an elderly population.

Figure 2-1.

Average Annual Growth Rate of the Elderly Population: 1910–30 to 2030–50

(In percent)
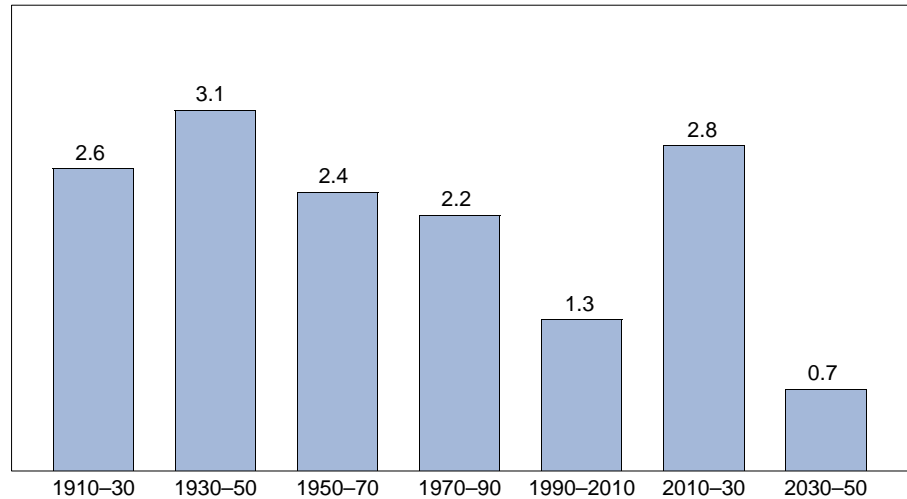
Source: U.S. Bureau of the Census. Data for 1910 to 1940, 1960, and 1980 shown in 1980 Census of Population, *General Population Characteristics*, PC80-1-B1, Tables 42 and 45, U.S. Government Printing Office, Washington, DC, May 1983; data for 1990 from 1990 Census of Population and Housing, CPH-L-74, *Modified and Actual Age, Sex, Race, and Hispanic Origin Data;* data for 2000 to 2050 shown in *Population Projections of the United States by Age, Sex, Race, and Hispanic Origin: 1993 to 2050*, Current Population Reports, P25-1104, U.S. Government Printing Office, Washington, DC, 1993; data for 1950 shown in *Estimates of the Population of the United States and Components of Change, by Age, Color, and Sex: 1950 to 1960*, Current Population Reports, Series P-25, No. 310, U.S. Government Printing Office, Washington DC, 1965; data for 1970 from unpublished tables consistent with *United States Population Estimates by Age, Race, Sex, and Hispanic Origin: 1988*, Series P-25, No. 1045, U.S. Government Printing Office, Washington, DC, 1990.

A "window of opportunity" now exists for planners and policy makers to prepare for the aging of the Baby-Boom generation.

Elderly Population Increased 11-Fold Between 1900 and 1994; Non-Elderly Only 3-Fold

The rate of growth of the elderly population has far exceeded the growth of the population of the country as a whole. In this century, the total population (and the population under age 65) tripled. The number of persons 65 years and over increased by a factor of eleven, from 3.1 million in 1900 to 33.2 million in 1994 (tables 2-1 and 2-2). Under the Census Bureau's middle series projections, the number of persons 65 years and over would more than double by the middle of the next century to 80 million. About 1 in 8 Americans were elderly in 1994, but about 1 in 5 could be elderly by the year 2030.

Table 2-1.
Elderly Population by Age: 1900 to 2050

(Numbers in thousands. Data for 2000 to 2050 are July 1 projections)

Year and census date/series	Total, all ages	Age in years							
		65-74		75-84		85 and over		65 and over	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent
Census Date									
1900 (June 1)	75,995	2,187	2.9	772	1.0	122	0.2	3,080	4.1
1910 (April 15)	91,972	2,793	3.0	989	1.1	167	0.2	3,949	4.3
1920 (January 1)	105,711	3,464	3.3	1,259	1.2	210	0.2	4,933	4.7
1930 (April 1)	122,775	4,721	3.8	1,641	1.3	272	0.2	6,634	5.4
1940 (April 1)	131,669	6,376	4.8	2,278	1.7	365	0.3	9,019	6.8
1950 (April 1)	150,697	8,415	5.6	3,277	2.2	577	0.4	12,269	8.1
1960 (April 1)	179,323	10,997	6.1	4,634	2.6	929	0.5	16,560	9.2
1970 (April 1)	203,302	12,447	6.1	6,124	3.0	1,409	0.7	19,980	9.8
1980 (April 1)	226,546	15,581	6.9	7,729	3.4	2,240	1.0	25,550	11.3
1990 (April 1)	248,710	18,045	7.3	10,012	4.0	3,021	1.2	31,079	12.5
Middle Series (Middle fertility, mortality, and immigration assumptions)[1]									
2000	276,241	18,551	6.7	12,438	4.5	4,333	1.6	35,322	12.8
2010	300,431	20,978	7.0	13,157	4.4	5,969	2.0	40,104	13.3
2020	325,942	30,910	9.5	15,480	4.7	6,959	2.1	53,348	16.4
2030	349,993	37,984	10.9	23,348	6.7	8,843	2.5	70,175	20.1
2040	371,505	33,968	9.1	29,206	7.9	13,840	3.7	77,014	20.7
2050	392,031	34,628	8.8	26,588	6.8	18,893	4.8	80,109	20.4
High Life Expectancy Series (High life expectancy, middle fertility, and middle net immigration assumptions)[2]									
2000	276,970	18,615	6.7	12,593	4.5	4,459	1.6	35,667	12.9
2010	303,115	21,242	7.0	13,625	4.5	6,572	2.2	41,439	13.7
2020	331,271	31,671	9.6	16,371	4.9	8,249	2.5	56,291	17.0
2030	358,859	39,554	11.0	25,240	7.0	11,110	3.1	75,904	21.2
2040	384,846	35,856	9.3	32,362	8.4	18,205	4.7	86,423	22.5
2050	409,960	36,818	9.0	30,023	7.3	26,357	6.4	93,198	22.7
Highest Series (High fertility, high life expectancy, and high net immigration assumptions)[3]									
2000	281,957	18,733	6.6	12,648	4.5	4,483	1.6	35,864	12.7
2010	319,536	21,585	6.8	13,806	4.3	6,644	2.1	42,035	13.2
2020	363,213	32,313	8.9	16,729	4.6	8,405	2.3	57,447	15.8
2030	410,991	40,776	9.9	25,856	6.3	11,410	2.8	78,042	19.0
2040	463,579	38,127	8.2	33,472	7.2	18,736	4.0	90,335	19.5
2050	522,098	40,094	7.7	32,029	6.1	27,318	5.2	99,441	19.0
Lowest Series (Low fertility, low life expectancy, and low net immigration assumptions)[4]									
2000	270,259	18,217	6.7	12,132	4.5	4,101	1.5	34,450	12.7
2010	281,180	19,933	7.1	12,116	4.3	5,055	1.8	37,104	13.2
2020	289,553	28,513	9.8	13,439	4.6	5,127	1.8	47,079	16.3
2030	292,902	33,800	11.5	19,228	6.6	5,808	2.0	58,836	20.1
2040	290,351	28,485	9.8	22,691	7.8	8,229	2.8	59,405	20.5
2050	285,502	27,665	9.7	19,088	6.7	9,894	3.5	56,647	19.8

Note: Figures for 1900 to 1950 exclude Alaska and Hawaii. Figures for 1900 to 1990 and projections for 2000 to 2050 are for the resident population.

[1]Assumes a total fertility rate in 2050 of 2,150, life expectancy at birth in 2050 of 79.7 years for males and 85.6 years for females, and an ultimate net migration of 880,000 per year.

[2]Assumes a total fertility rate in 2050 of 2,150, life expectancy at birth in 2050 of 83.8 years for males and 91.1 years for females, and an ultimate net migration of 880,000 per year.

[3]Assumes a total fertility rate in 2050 of 2,622, life expectancy at birth in 2050 of 83.8 years for males and 91.1 years for females, and an ultimate net migration of 1,370,000 per year.

[4]Assumes a total fertility rate in 2050 of 1,892, life expectancy at birth in 2050 of 71.6 years for males and 79.2 years for females, and an ultimate net migration of 350,000 per year.

Source: U.S. Bureau of the Census. Data for 1900 to 1940, 1960, and 1980 shown in 1980 Census of Population, PC80-B1, *General Population Characteristics*, Tables 42 and 45; Data for 1990 from 1990 Census of Population and Housing, Series CPH-L-74, *Modified and Actual Age, Sex, Race, and Hispanic Origin Data*. 2000 to 2050 shown in *Population Projections of the United States by Age, Sex, Race, and Hispanic Origin: 1993 to 2050*, Current Population Reports, P25-1104, Washington DC, U.S. Government Printing Office, 1993. Data for 1950 shown in *Estimates of the Population of the United States and Components of Change, by Age, Color, and Sex: 1950 to 1960*, Current Population Reports, Series P-25, No. 310, U.S. Government Printing Office, Washington, DC, 1965. Data for 1970 from unpublished table consistent with *United States Population Estimates by Age, Race, Sex, and Hispanic Origin: 1988*, Series P-25, No. 1045, U.S. Government Printing Office, Washington, DC, 1990.

Table 2-2.
## Population 65 Years and Over by Age, Sex, Race, and Hispanic Origin: July 1, 1994

(Consistent with the 1990 Census, as enumerated)

Race/Hispanic origin and sex	Age											
	Total, 65 years and over	65 to 69 years	70 to 74 years	Total, 75 years and over	75 to 79 years	Total, 80 years and over	80 to 84 years	Total, 85 years and over	85 to 89 years	90 to 94 years	95 to 99 years	Total, 100 years and over
All Races												
Both sexes	33,202,067	9,973,114	8,760,095	14,468,858	6,610,810	7,858,048	4,382,601	3,475,447	2,284,298	917,741	223,514	49,894
Male	13,500,836	4,503,313	3,791,106	5,206,417	2,662,205	2,544,212	1,562,534	981,678	694,244	230,161	46,573	10,700
Female	19,701,231	5,469,801	4,968,989	9,262,441	3,948,605	5,313,836	2,820,067	2,493,769	1,590,054	687,580	176,941	39,194
Males per 100 females .	68.5	82.3	76.3	56.2	67.4	47.9	55.4	39.4	43.7	33.5	26.3	27.3
White												
Both sexes	29,772,103	8,791,294	7,848,123	13,132,686	5,973,453	7,159,233	3,986,013	3,173,220	2,094,959	834,832	202,664	40,765
Male	12,141,876	3,999,816	3,416,907	4,725,153	2,416,390	2,308,763	1,420,785	887,978	632,515	206,120	41,340	8,003
Female	17,630,227	4,791,478	4,431,216	8,407,533	3,557,063	4,850,470	2,565,228	2,285,242	1,462,444	628,712	161,324	32,762
Males per 100 females .	68.9	83.5	77.1	56.2	67.9	47.6	55.4	38.9	43.3	32.8	25.6	24.4
Black												
Both sexes	2,677,912	904,525	699,910	1,073,477	505,842	567,635	320,249	247,386	155,065	67,988	16,777	7,556
Male	1,035,106	385,360	280,089	369,657	189,129	180,528	108,335	72,193	47,496	18,441	4,031	2,225
Female	1,642,806	519,165	419,821	703,820	316,713	387,107	211,914	175,193	107,569	49,547	12,746	5,331
Males per 100 females .	63.0	74.2	66.7	52.5	59.7	46.6	51.1	41.2	44.2	37.2	31.6	41.7
American Indian, Eskimo, and Aleut												
Both sexes	136,720	46,140	36,265	54,315	24,232	30,083	16,019	14,064	8,322	4,130	1,057	555
Male	57,790	21,057	16,026	20,707	10,052	10,655	6,119	4,536	2,741	1,320	302	173
Female	78,930	25,083	20,239	33,608	14,180	19,428	9,900	9,528	5,581	2,810	755	382
Males per 100 females .	73.2	83.9	79.2	61.6	70.9	54.8	61.8	47.6	49.1	47.0	40.0	45.3
Asian and Pacific Islander												
Both sexes	615,332	231,155	175,797	208,380	107,283	101,097	60,320	40,777	25,952	10,791	3,016	1,018
Male	266,064	97,080	78,084	90,900	46,634	44,266	27,295	16,971	11,492	4,280	900	299
Female	349,268	134,075	97,713	117,480	60,649	56,831	33,025	23,806	14,460	6,511	2,116	719
Males per 100 females .	76.2	72.4	79.9	77.4	76.9	77.9	82.6	71.3	79.5	65.7	42.5	41.6
Hispanic origin[1]												
Both sexes	1,456,078	523,594	385,246	547,238	248,037	299,201	166,790	132,411	85,775	36,141	8,218	2,277
Male	608,500	233,228	168,646	206,626	99,632	106,994	61,299	45,695	30,220	12,284	2,508	683
Female	847,578	290,366	216,600	340,612	148,405	192,207	105,491	86,716	55,555	23,857	5,710	1,594
Males per 100 females .	71.8	80.3	77.9	60.7	67.1	55.7	58.1	52.7	54.4	51.5	43.9	42.8

[1]Hispanic origin may be of any race.

Source: U.S. Bureau of the Census, Data consistent with *U.S. Population Estimates by Age, Sex, Race, and Hispanic Origin: 1990 to 1993*, Population Paper Listing-8 (PPL-8), 1994.

Figure 2-2.
Projected Elderly Population—Alternative Series: 1990 to 2050
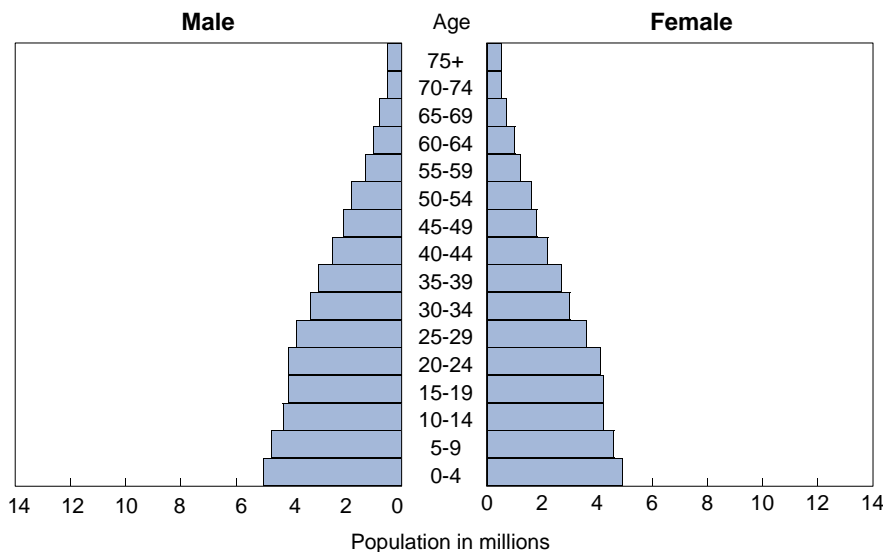
Millions

Highest

Middle

Lowest
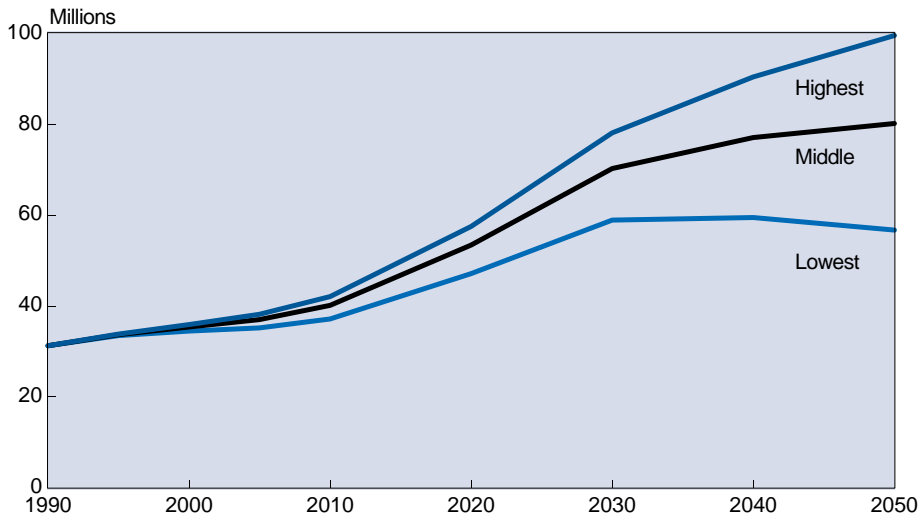
Source: U.S. Bureau of the Census. Data for 1990–92 shown in Population Paper Listing–8 (PPL–8), "U.S. Population Estimates, by Age, Sex, Race and Hispanic Origin: 1990–1993." Data for 1993 to 2050 shown in *Population Projections of the United States by Age, Sex, Race, and Hispanic Origin: 1993 to 2050*, Current Population Reports, P25–1104, U.S. Government Printing Office, Washington, DC, 1993.

Figure 2-3.
Population by Age and Sex: 1905

Population in millions

Source: U.S. Bureau of the Census, *Estimates of the Population of the United States, by Single Years of Age, Color, and Sex: 1900 to 1959*, Current Population Reports, Series P-25, No. 311. U.S. Government Printing Office, Washington, DC, 1965.

The elderly population explosion between 2010 and 2030 is inevitable (figure 2-2). While the growth of the elderly from 1990 to 2010 will be steady, there will be a massive increase in the number of elderly persons during the 2010-30 period when the Baby-Boom generation reaches age 65. The elderly population of the country reached 30 million persons in 1988. Since then, it will take another two decades before the number of elderly increases to 40 million persons. Then, it would take only 7 more years for the elderly to increase an additional 10 million, to 50 million elderly. Projected elderly populations far into the next century range considerably, due to alternative mortality assumptions (by age) and varying assumptions of the future number and age profile of international migrants.

Our Nation's Age Structure Shape has Shifted

To better understand the progression of growth of the elderly population, we will examine selected age-sex pyramids from 1905 to 2050. The distribution of the population by age and sex in 1905 exhibits a classic shape, wider at the bottom from births and more narrow at the top as death takes its toll at the older ages (figure 2-3). This broad-based shape is characteristic of a young, and relatively high fertility population. The general shape of the pyramid remained essentially the same until the 1921-to-1945 period when there was a dramatic drop in birth rates. From 3.1 million births in 1921, annual births declined to 2.5 million in the early 1930's

and did not pass the 3 million mark again until 1943.[4]

Since the Second World War, the United States has been on a demographic roller coaster in terms of the number of births. After the 1930's Baby Bust came the 1950's Baby Boom, another Baby Bust in the 1970's, followed by the 1980's Baby Boomlet (also called the "Baby Echo" as they are the children of persons born during the Baby Boom). The population pyramid for 1975 shows a marked "pinch" in the middle of the chart for ages 35-44 years, a result of the exceptionally low birth rates of the Depression years (figure 2-4). The Baby-Boom bulge appears in the 1975 pyramid in the five-year age groups from ages 10 to 29, and the beginnings of the 1970's Baby Bust are evident at the youngest ages. During this period of fluctuating births and improving survivorship, the elderly grew from 5 percent of the American population in 1930 to nearly 13 percent in 1994.

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[4] Births include adjustment for underregistration and for 1921-32, adjustment for States not in the birth registration area. Trend data are from National Center for Health Statistics, *Vital Statistics of the United States, 1990*, Vol. 1, *Natality,* Washington, DC, Public Health Service, 1994.
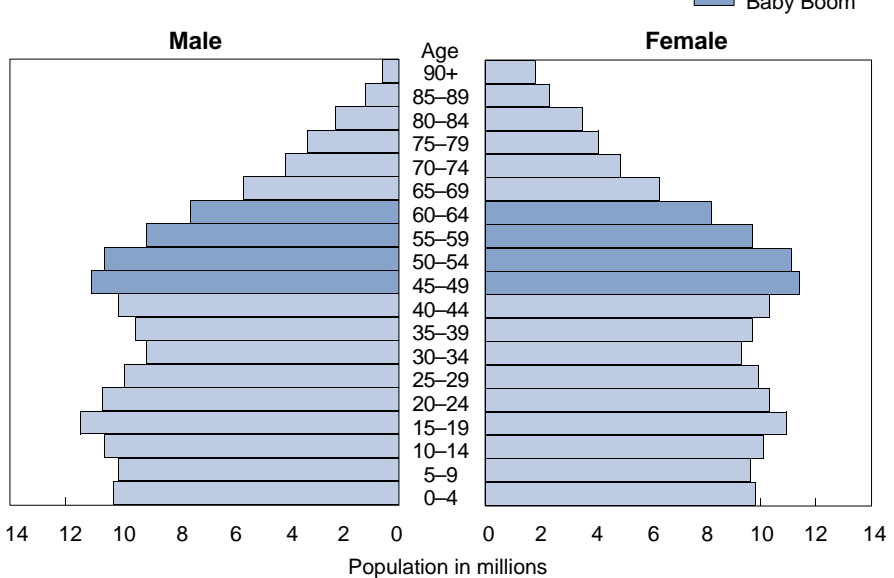
Figure 2-4.
Population by Age and Sex: 1975

Source: U.S. Bureau of the Census, *Preliminary Estimates of the Population of the United States, by Age, Sex, and Race: 1970 to 1981,* Current Population Reports, Series P-25, No. 917. U.S. Government Printing Office, Washington DC, 1982.
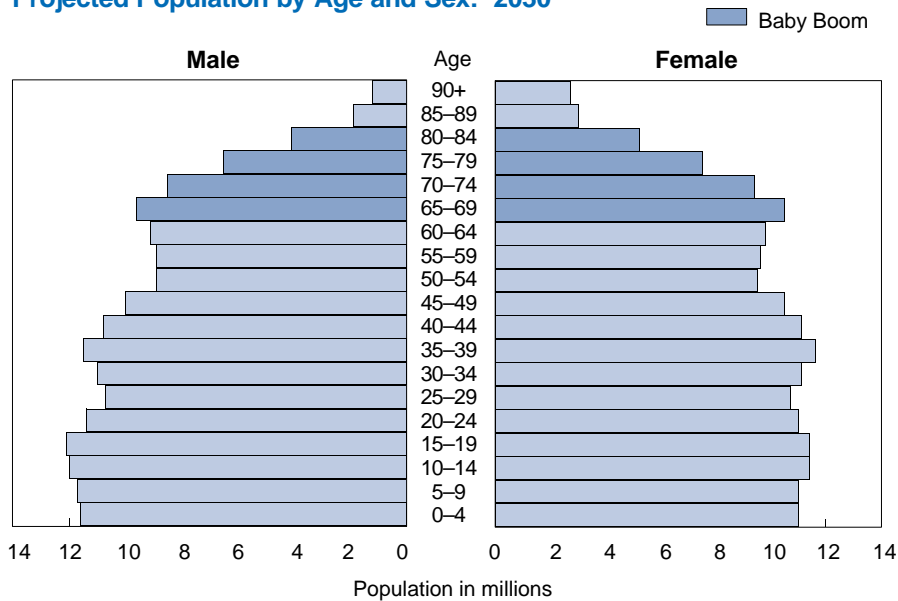
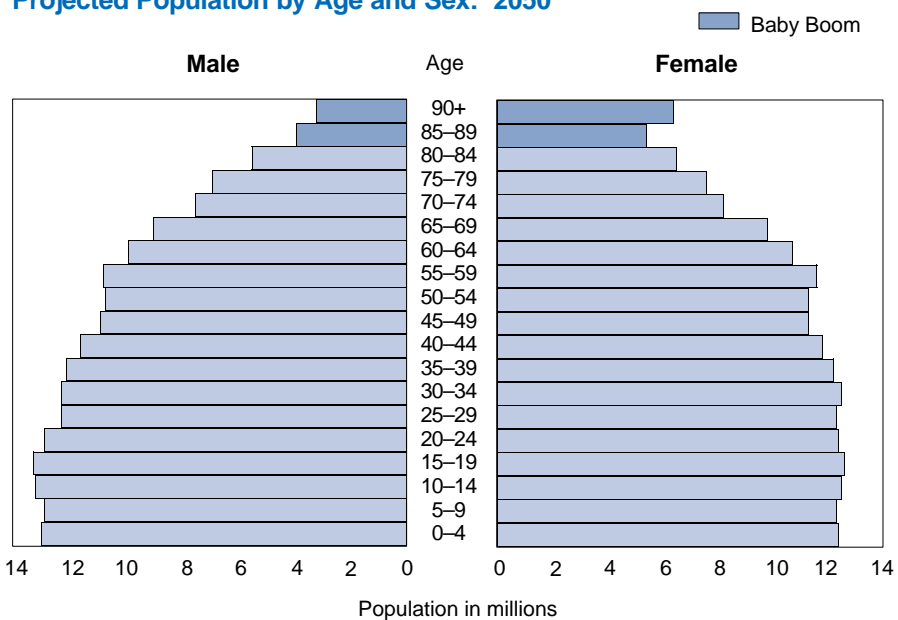Figure 2-5.
Projected Population by Age and Sex: 2010

Source: Jennifer C. Day, U.S. Bureau of the Census, *Population Projections of the United States, by Age, Sex, Race, and Hispanic Origin: 1993 to 2050,* Current Population Reports, P25-1104. U.S. Government Printing Office, Washington, DC, 1993 (middle series projections).

Figure 2-6.
Projected Population by Age and Sex: 2030

Baby Boom

Male   Age   **Female**

Population in millions

Source: Jennifer C. Day, U.S. Bureau of the Census, *Population Projections of the United States, by Age, Sex, Race, and Hispanic Origin: 1993 to 2050,* Current Population Reports, P25-1104. U.S. Government Printing Office, Washington, DC, 1993 (middle series projections).

Figure 2-7.
Projected Population by Age and Sex: 2050

Baby Boom

Male   Age   **Female**

Population in millions

Source: Jennifer C. Day, U.S. Bureau of the Census, *Population Projections of the United States, by Age, Sex, Race, and Hispanic Origin: 1993 to 2050,* Current Population Reports, P25-1104. U.S. Government Printing Office, Washington, DC, 1993 (middle series projections).

By 2010, the Baby Boom will be aged 46 to 64 (figure 2-5). After that, growth of the elderly population will be more dramatic (figures 2-6 and 2-7) as the Baby Boom becomes the Grandparent Boom. From 2010 to 2030, they will be the young old and the aged (65 to 74 years old and 75 to 84 years old). The present ratio of 3 elderly women to 2 elderly men may be reduced, with women ex-pected to outnumber men 6 to 5 by 2030. During these two decades, the population aged 65 to 84 years would grow 80 percent under middle series projections while the population aged 85 and over would grow 48 percent. The population under age 65 would increase only 7 percent.

After 2030, we will see the final phase of the gerontological explosion. The growth of the young old would decel-erate as the cohort born after the Baby Boom, from 1965 to 1984, will be ages 66 through 85 in 2050. That age group would reach 58 million in 2030, and stand at only 59 million in 2050. It is the size of the oldest old population that we will notice after 2030. By 2050, the "rectangular" shape of the pyramid will be quite pronounced, a characteristic of a sustained low fertility, low mortality population. This structure may strongly influence the fabric of our society, which is likely to be vastly different from what we observe today.

Oldest Old Segment of Elderly Population Growing More Rapidly

The oldest old are a small but rapidly growing group. In 1900, 122,000 people were 85 years or older. Their numbers had reached 3 million in 1990 (figure 2-8). In 1994, an estimated 3.5 million persons were 85 years or older and nearly 1.2 million were estimated to be 90 or older.

The number of centenarians in the United States, persons 100 years or older, is uncertain. The 1990 population census reports 36,000 centenarians, a total we know is high. Even though the number of centenarians is subject to error due largely to exaggeration in the reporting of age, the number of centenarians in 1990 (by one estimation method) was about 28,000,[5] double the number estimated for 1980 (about 14,000).[6] Centenarians, while growing rapidly, are still a very small proportion of the U.S. population. About 4 of 5 centenarians are women. The chances of living to age 100 have improved. For those born in 1879, the odds against living 100 years were 400 to 1. The latest available decennial life tables (based on the mortality experience of 1979-1981) imply that persons born in 1980 had odds of 87 to 1.[7]

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[5] Prithwis Das Gupta, U.S. Bureau of the Census, unpublished calculations using the Extinct Generation Method of estimation.
[6] Gregory Spencer, Arnold Goldstein, and Cynthia Taeuber, U.S. Bureau of the Census, *America's Centenarians: Data From the 1980 Census*, Current Population Reports, Series P-23, No. 153, Washington DC, 1987.
[7] Ibid.

The age group 85 and over is projected to be the fastest growing part of the elderly population throughout the rest of this century. From 1960 to 1994, this group increased 274 percent compared with an increase of 100 percent for the population 65 years and over and 45 percent for the total population. In 1900, the 85-and-over group represented only 4 percent of the population 65 years and over. In 1994, they were 10 percent of the nation's elderly. While such percent changes are extremely high, those 85 years and over are a relatively small group, just over 1 percent of the American population. Their size is already sufficient, however, to have a major impact on the nation's health and social service systems. Many social, economic, and health characteristics of the oldest old differ greatly from those of the young old.

Figure 2-8.
Population 85 Years and Over: 1900 to 2050

(In millions)
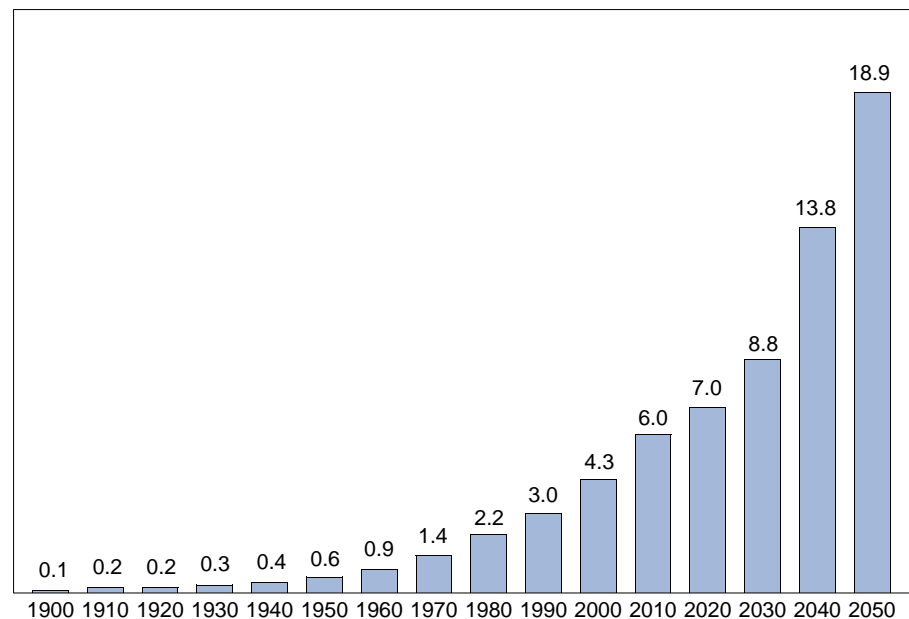
Source: U.S. Bureau of the Census, Decennial Censuses for specified years and *Population Projections of the United States by Age, Sex, Race, and Hispanic Origin: 1993 to 2050*, Current Population Reports, P25-1104, U. S. Government Printing Office, Washington, DC, 1993. Data for 1990 from *1990 Census of Population and Housing*, CPH-L-74, *Modified and Actual Age, Sex, Race, and Hispanic Origin Data*.
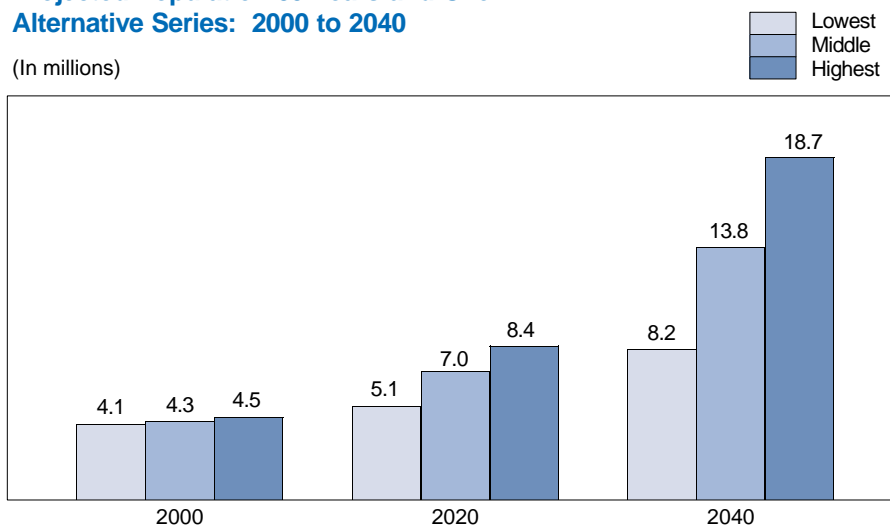
According to Census Bureau middle series projections, the population aged 85 and over will more than double, from 3 million in 1990 to 7 million in 2020 (figure 2-9). This group will again double in size to 14 million by 2040, as the survivors of the Baby-Boom cohort reach the oldest ages. By 2050, the oldest old would be nearly 5 percent of the total population, compared to just over 1 percent in 1994. Projections of the future number of persons ages 85 and over range considerably, the longer the projection period. The Census Bureau projections indicate that in 2000 the oldest old population would be between 5 to 8 million. Under the "highest" projection series, which assumes additional improvement in survival rates of the population and a higher level of net international migration than projected under middle series assumptions, the oldest old could number as many as 19 million in 2040. If survival rates improve even more than assumed under the Census Bureau's high series assumption, the size of the oldest old population decades from now could be even greater.

If mortality levels continue on the same course as we have experienced recently and if the volume and age composition of net international migration remains stable, then by the middle of the next century nearly 10 million Americans would be 90 years or older, compared with just over 1 million in 1994. If mortality rates decrease at a faster rate among the oldest old than is projected, the numbers would be much higher. If fertility rates decrease further, the elderly would become a larger proportion of the population than now. With such demographic possibilities facing us, public and private sector policy makers are becoming more attentive to the implications of not just an older population, but of an aging society.

Another way to look at the changing age structure of the elderly is a ratio defined by Siegel.[8] He defines the ratio for two elderly generations as the number of persons aged 85 years and over per 100 persons aged 65 to 69 years (table 2-3). In 1950, the overall ratio was 12 and similar for Whites and Blacks. In four decades,

Figure 2-9.
Projected Population 85 Years and Over—Alternative Series: 2000 to 2040

(In millions)

Source: U.S. Bureau of the Census, *Population Projections of the United States, by Age, Sex, Race, and Hispanic Origin: 1993 to 2050*, Current Population Reports, P25-1104, U.S. Government Printing Office, Washington, DC, 1993.

Table 2-3.
Two-Elderly-Generation Support Ratios: 1950 to 2050

(Ratio of persons aged 85 years and over to persons aged 65 to 69 years. For meaning of abbreviations and symbols, see introductory text.)

Race/Hispanic origin	1950	1990	2010	2030	2050
Total	12	30	50	44	100
White	12	31	52	46	109
Black	11	26	35	26	57
Other races	14	17	36	48	82
Hispanic origin [1]	(NA)	21	39	37	84

[1] Hispanic origin may be of any race.

Source: U.S. Bureau of the Census, 1950 from 1950 Census of Population, Volume 2, Part 1, Chapter C, Table 112; 1990 from 1990 Census of Population and Housing, Series CPH-L-74, *Modified and Actual Age, Sex, Race, and Hispanic Origin Data*; 2010 to 2050 from *Population Projections of the United States, by Age, Sex, Race, and Hispanic Origin: 1993 to 2050*, Current Population Reports, Series P25-1104, U.S. Government Printing Office, Washington, DC, 1993.

[8] Jacob S. Siegel and Cynthia M. Taeuber, "Demographic Perspectives on the Long-Lived Society," *Daedalus*, Vol. 115, No. 1, 1986, p. 84.

the ratio increased to 30. By 2050, it would increase to 100 and would be highest for Whites. The ratio of 30 in 1990 implies that there were about 3 times as many persons aged 65 to 69 years as there were persons aged 85 years and over, while the ratio of 100 in 2050 implies that there are as many persons aged 85 years and over as there are persons aged 65 to 69 years.

The two-elderly-generation-ratio increased from 1950 to 1990 and would continue to increase steadily from 1990 to 2010. After that, it would decrease somewhat until 2030 because the Baby Boom 65-to-69-year-old group will be large. The ratio would more than double for Whites and Blacks from 2030 to 2050 when the Baby-Boom generation reaches the oldest old ages. The experience and problems of the young old caring for the oldest old will become more and more familiar throughout society. The physical condition of the young old may become a serious issue as they try to help frail elderly move from beds to chairs to baths and toilets. Need for a greater variety of home aids, changes in the physical structure of homes to accommodate physical limitations, and increased demands for access to public buildings for the disabled are likely.

The middle series projections shown above indicate what would happen to the age distribution if fertility, mortality, and net migration trends followed recent patterns into the middle of the next century.[9] If the number of

children born or the immigration of nonelderly adults increased significantly, the size of the working-age population would eventually increase relative to the elderly population. The relative size of the elderly to the young and working-age populations may be altered by increased fertility or changes in the volume and age structure of international migration. Still, the future explosion of the number of elderly persons will most certainly occur, unless somehow substantial numbers of Baby Boomers were to die young and/or leave the country between now and the 2010-2030 period. Neither of these scenarios is likely. Although projections generally should be used with caution, planners and policymakers can place a great deal of confidence in the projected future rapid growth in the size of the elderly population, even though the
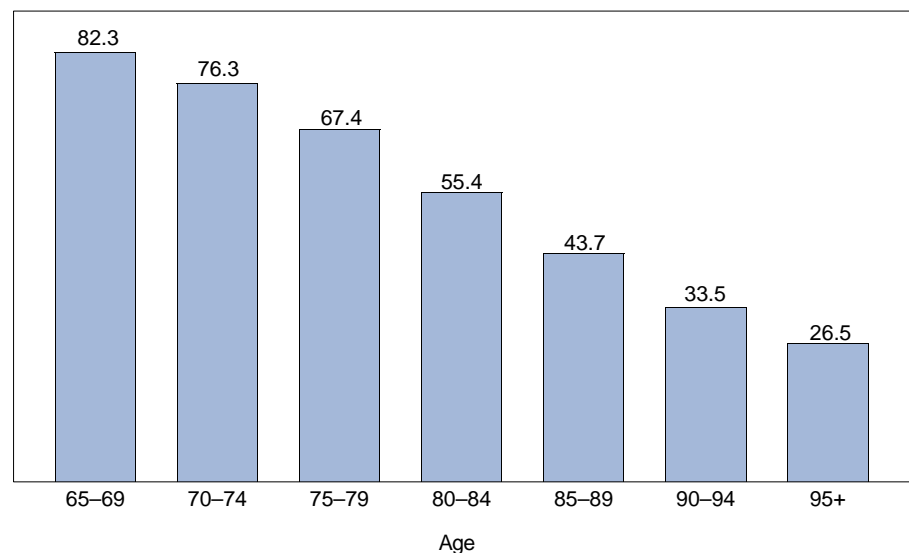
exact numbers remain unknown and dependent on future changes in mortality and migration.

Older Women and Older Men

Elderly Women Outnumber Elderly Men 3 to 2

Men generally have higher death rates than women at every age. As a result, in 1994 elderly women in the United States outnumbered men 3 to 2, a change from 1930 when they were nearly equal in number (due in part to the fact that immigrants were more likely to be men). In 1994, there were nearly 20 million elderly women. That's about 6 million more elderly women than elderly men. The difference between the number of men and women grows with advancing age. At ages 65 to 69, women outnumber men 6 to 5; for those 85

[9] Jennifer Cheeseman Day, U.S. Bureau of the Census, *Projections of the Population of the United States, by Age, Sex, and Race: 1993 to 2050*, Current Population Reports, P25–1104, Washington, DC, 1993, Table A, Principal assumptions for race/Hispanic groups.

Figure 2-10.
Number of Men per 100 Women by Age: 1994

Source: U.S. Bureau of the Census, data consistent with "U.S. Population Estimates by Age, Sex, Race, and Hispanic Origin: 1990 to 1993," Population Paper Listing–8 (PPL–8), 1994.

years and over, women outnumber men 5 to 2 (table 2-2).

For a global perspective, in 1994, there were 4 elderly women to 3 elderly men, a lower ratio than for the United States. The world had 50 million more elderly women than men. As with the population of the U.S., the extent to which women outnumber men in the world increases with age. By ages 80 years and over, the world's women outnumbered men by a ratio of nearly 2 to 1.

Perhaps no feature of the oldest old population in the United States is as striking as their relative numbers of males and females (982,000 males and 2.5 million females in 1994). In 1994, 72 percent of the U.S. population 85 years and over were women. The sex ratio (males per 100 females) in the United States was 44 for persons aged 85 to 89 years, and 26 for persons aged 95 years and over. By comparison, the sex ratio was 82 for persons aged 65 to 69 years (figure 2-10).

The general trend in the sex ratio for the oldest old population illustrates the greater survivorship probabilities of women throughout the life cycle. In 1930, the sex ratio for persons 85 years and over was 75; in 1990, it was 39. This trend may abate in the next century if relative mortality trends do not change significantly from what they have been in recent years. Men aged 85 and over are expected to increase their numbers relative to

women. By 2050, the sex ratio of the oldest old would be 60 under the middle series projections. Nevertheless, there would still be 4.7 million more women than men in this age group (table 2-4).

The death of a husband often marks the point of acute economic reversals for the surviving wife. The combined factors of men generally being older than their spouses and higher life expectancy for women than men, contribute to the high proportion of women living alone, the earlier institutionalization of women than men, sharply reduced income and a disproportionately high level of poverty among women, and a need for special support from family members or society.

In the future, we expect a delay in some of these problems as more men live to older ages. By the middle of the next century, we expect to see about five elderly men to six elderly women among Whites and a 2 to 3 ratio among elderly Blacks.

Even among the oldest old, we may see a narrowing in mortality differences between men and women. Under middle series projections, we would see a ratio of three men 85 years and over to five women that age by 2050. Women would still be more likely than men to survive to the oldest ages. Thus, the health, social, and economic problems of the oldest old are likely to remain primarily the problems of women.

Table 2-4.
Balance of Males and Females 85 Years and Over: 1930 to 2050

(Sex ratio is males per 100 females 85 years and over)

Year	Sex Ratio	Excess of females (thousands)
1930 . .	75.4	38
1940 . .	75.0	52
1950 . .	69.7	103
1960 . .	63.9	205
1970 . .	53.3	430
1980 . .	43.7	877
1990 . .	38.6	1,339
2030 . .	54.6	2,599
2050 . .	60.1	4,705

Note: Data shown for 1930-1990 are for April 1, and data for 2030 and 2050 are for July 1.

Source: U.S. Bureau of Census, data for 1930 and 1940 shown in 1940 Census of Population, Volume IV, Part 1, *Characteristics by Age*, Table 2; data for 1950 shown in *Estimates of the Population of the United States and Components of Change, by Age, Color, and Sex: 1950 to 1960*, Current Population Reports, Series P-25, No. 310, U.S. Government Printing Office, Washington, DC, 1965; data for 1960 and 1980 shown in 1980 Census of Population, PC80-B1, *General Population Characteristics*, Table 45; data for 1970 shown in unpublished tables consistent with *United States Population Estimates by Age, Race, Sex, and Hispanic Origin: 1988*, P-25, No. 1045, U.S. Government Printing Office, Washington, DC, 1990; data for 1990 from 1990 Census of Population and Housing, Series CPH-L-74, *Modified and Actual Age, Sex, Race, and Hispanic Origin Data*.; data for 2030 and 2050 shown in *Population Projections of the United States by Age, Sex, Race, and Hispanic Origin: 1993 to 2050*, Current Population Reports, P25-1104, U.S. Government Printing Office, Washington, DC, 1993.
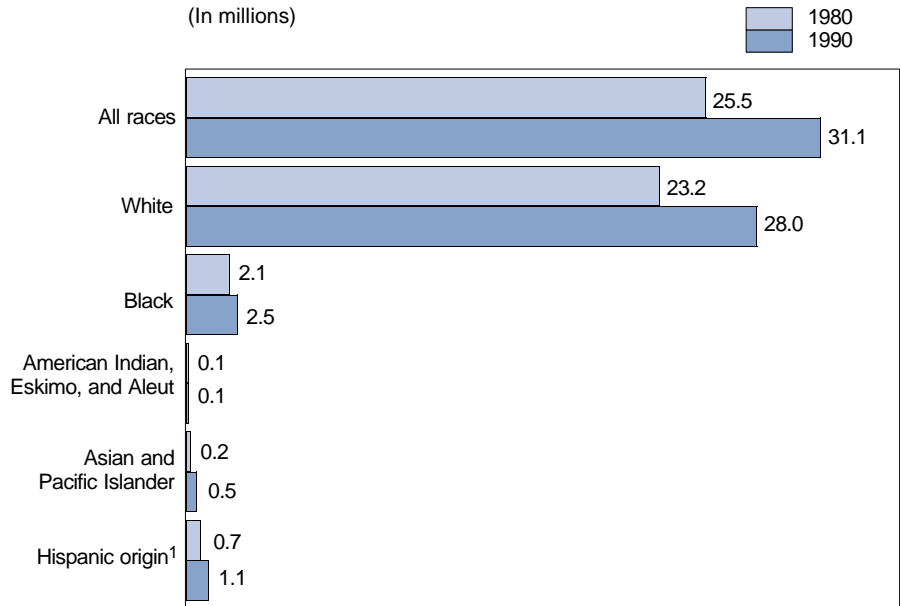
Race and Hispanic Origin of the Elderly

Racial and Ethnic Diversity Among the Elderly Will Increase

The elderly population is predominantly White but we can expect to see more racial diversity and more persons of Hispanic origin within America's elderly population in the coming years. Of the total elderly population in 1994, about 29.8 million were White; 2.7 million, Black; 137,000, American Indian, Eskimo, and Aleut (AIEA); 615,000, Asian and Pacific Islander (API); and 1.5 million were of Hispanic origin (who may be of any race) (table 2-2). The elderly Asian and Hispanic origin populations had relatively large percentage gains between 1980 and 1990 (figure 2-11).[10]

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[10] U.S. Bureau of the Census, 1980 Census of Population, *General Social and Economic Characteristics, U.S. Summary*, PC80-1-C1, Washington, DC, December 1983, table 120.

Figure 2-11.

Persons 65 Years and Over by Race and Hispanic Origin: 1980 and 1990
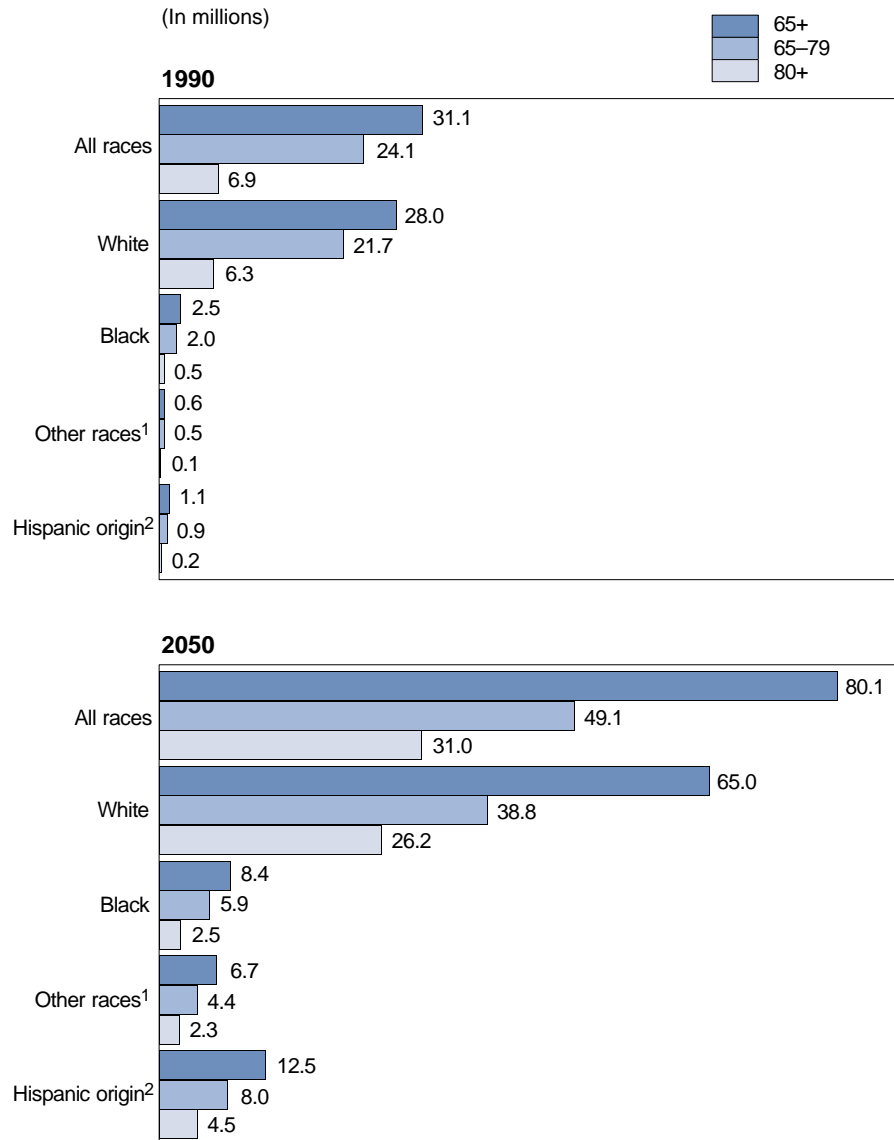
(In millions)

[1] Hispanic origin may be of any race.

Source: U.S. Bureau of the Census, *U.S. Population Estimates, by Age, Sex, Race, and Hispanic Origin : 1980 to 1991*, Current Population Reports, P25-1095, U.S. Government Printing Office, Washington, DC, 1993, table 1.

Figure 2-12.
Persons 65 Years and Over by Age, Race, and Hispanic Origin: 1990 and 2050

(In millions)

Legend:
- 65+
- 65–79
- 80+

1990

All races
- 31.1
- 24.1
- 6.9

White
- 28.0
- 21.7
- 6.3

Black
- 2.5
- 2.0
- 0.5

Other races[1]
- 0.6
- 0.5
- 0.1

Hispanic origin[2]
- 1.1
- 0.9
- 0.2

2050

All races
- 80.1
- 49.1
- 31.0

White
- 65.0
- 38.8
- 26.2

Black
- 8.4
- 5.9
- 2.5

Other races[1]
- 6.7
- 4.4
- 2.3

Hispanic origin[2]
- 12.5
- 8.0
- 4.5

[1] Includes Asian and Pacific Islanders, as well as American Indian, Eskimo, and Aleut.

[2] Hispanic origin may be of any race.

Source: U.S. Bureau of the Census, 1990 from 1990 Census of Population and Housing, CPH-L-74, *Modified and Actual Age, Sex, Race, and Hispanic Origin Data*; and 2050 from *Population Projections of the United States, by Age, Sex, Race, and Hispanic Origin: 1993 to 2050*, Current Population Reports, P25-1104, U.S. Government Printing Office, Washington, DC, 1993.
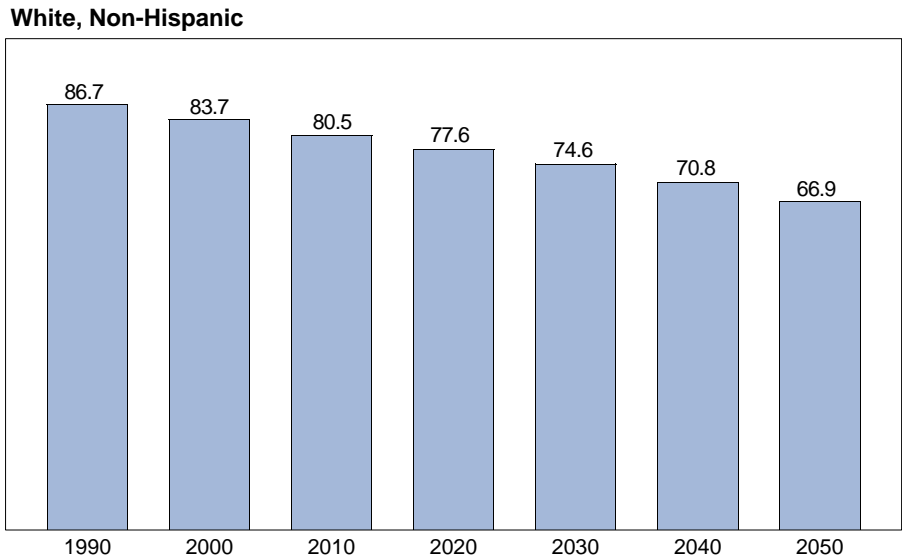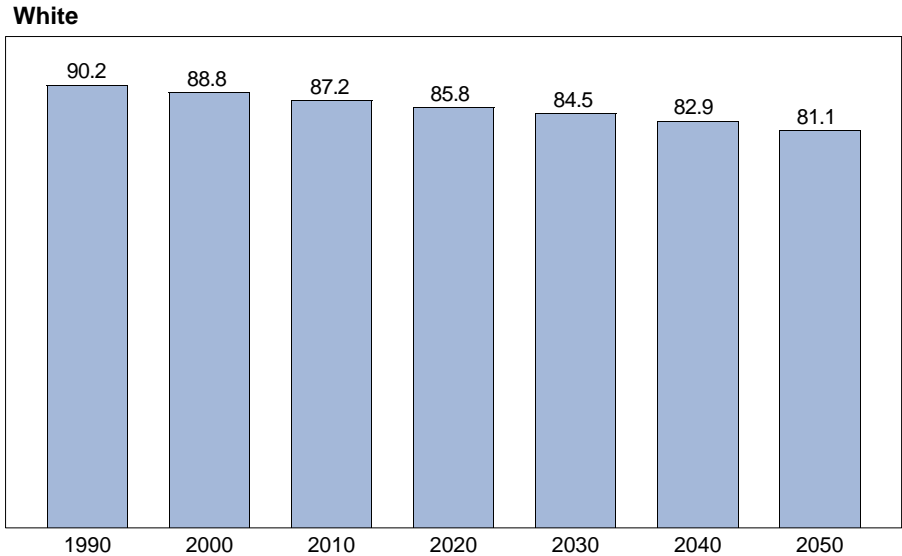
In the coming decades, the elderly population will be much more racially and ethnically diverse than in the 1990's. Of the 80.1 million elderly projected in the middle series for 2050 (figure 2-12), 8.4 million would be Black, 6.7 million would be races other than White or Black, and 12.5 million would be Hispanic (who may be of any race). These totals reflect the Census Bureau's middle series projection assumptions. The observed totals will vary to the extent actual levels of international migration and survivorship, by race and Hispanic origin, depart from the projection assumptions. If the chance of survival improves more rapidly for each group than in the middle series assumption, the numbers shown would be even higher.

While persons of races other than White constituted about 1 in 10 elderly persons in 1990, that will change significantly by 2050 when the proportion may increase to 2 of 10 (figure 2-13).[11] Over this period, the number of elderly Blacks would more than triple (figure 2-14) and their proportion of the total elderly population would increase from 8 to 10 percent (figure 2-15). Asians, Pacific Islanders, American Indians, Eskimos, and Aleuts combined would increase from less than 2 percent of the total elderly population to 8 percent over the 1990 to 2050 period.

_____

[11] Hispanic origin persons may be of any race. In the text, Hispanic origin persons are included in the "White" group if that is the way they identified themselves in the census. The proportion elderly who are "minorities" (that is, Hispanics and races other than White) could be higher than 2 in 10 if many Hispanics identify their race as "White."

Figure 2-13.
Percent White and White, Non-Hispanic, of the Total Population 65 Years and Over: 1990 to 2050

(The White population includes persons of Hispanic origin)

White

1990	2000	2010	2020	2030	2040	2050
90.2	88.8	87.2	85.8	84.5	82.9	81.1

White, Non-Hispanic

| 1990	2000	2010	2020	2030	2040	2050
86.7	83.7	80.5	77.6	74.6	70.8	66.9

Source: U.S. Bureau of the Census, 1990 from *U.S. Population Estimates, by Age, Sex, Race, and Hispanic Origin: 1980 to 1991*, Current Population Reports, P25-1095, U.S. Government Printing Office, Washington, DC, 1993; and 2000 to 2050 from *Population Projections of the United States, by Age, Sex, Race, and Hispanic Origin: 1993 to 2050*, Current Population Reports, P25-1104. U.S. Government Printing Office, Washington, DC, 1993.

Figure 2-14.
Black and Hispanic Origin Population 65 Years and Over: 1990 to 2050

(In millions)

Black
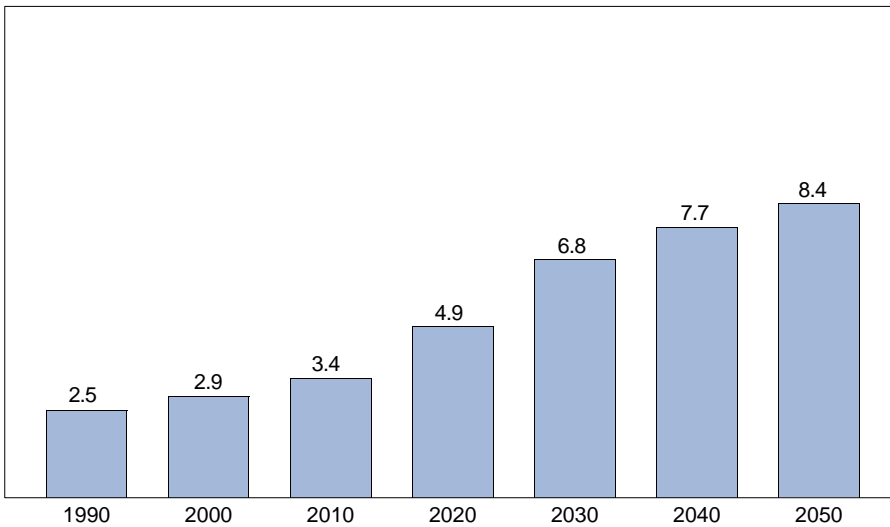
Hispanic Origin[1]
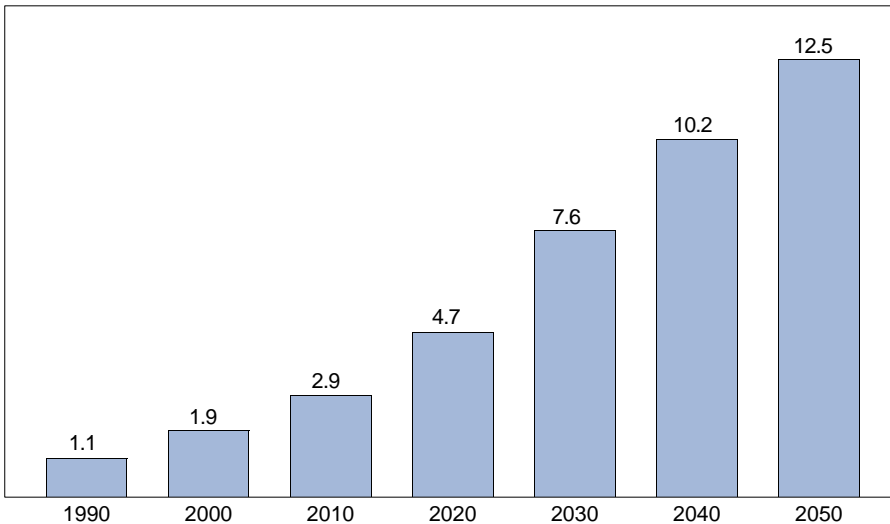
Hispanic Elderly Growing Rapidly

Under the middle series projections, the elderly Hispanic population would more than double from 1990 to 2010 and would be 11 times greater by 2050 (figure 2-14). The Hispanic elderly population, which numbered less than half of the Black elderly population in 1990, is growing much faster than the Black elderly population. Under the assumptions of the middle series projections, in 2030, the number of Hispanic elderly (7.6 million) would be larger than the elderly Black population (6.8 million).

[1] Hispanic origin may be of any race.

Source: U.S. Bureau of the Census, 1990 from 1990 Census of Population and Housing, CPH-L-74, *Modified and Actual Age, Sex, Race, and Hispanic Origin Data;* and 2000 to 2050 from *Population Projections of the United States, by Age, Sex, Race, and Hispanic Origin: 1993 to 2050*, Current Population Reports, P25-1104. U.S. Government Printing Office, Washington, DC, 1993.

Hispanic elderly would increase from less than 4 percent of the total elderly population in 1990 to 16 percent by the middle of the next century (figure 2-15). The percent Black of the total elderly population also will increase during the coming decades.

Excluding the Hispanic population from the race categories, the Black non-Hispanic proportion of the elderly population by the middle of the next century would be 10 percent, the White non-Hispanic proportion would be 67 percent, and the Asian and Pacific Islander proportion would be 7 percent.

Figure 2-15.
Percent Black and Hispanic Origin of the Total Population 65 Years and Over: 1990 to 2050

Black

Hispanic Origin[1]

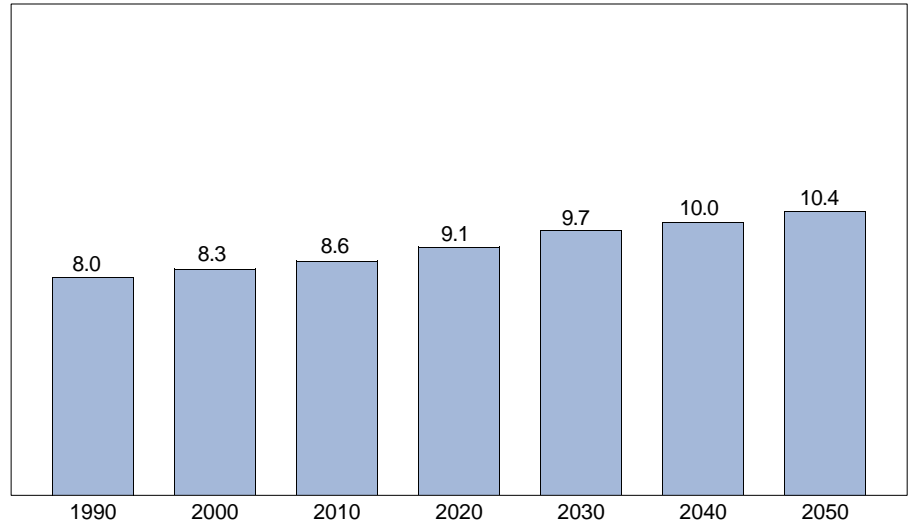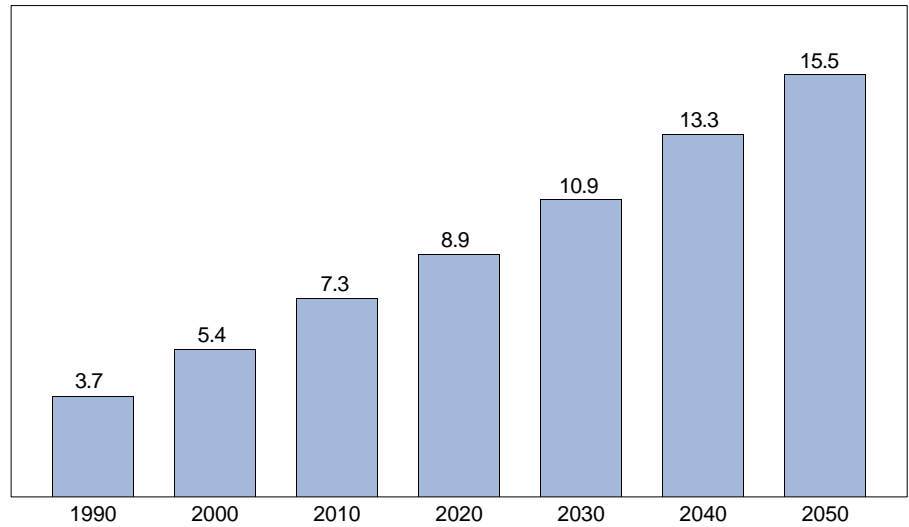[1] Hispanic origin may be of any race.

Source: U.S. Bureau of the Census, 1990 from 1990 Census of Population and Housing, CPH-L-74, *Modified and Actual Age, Sex, Race, and Hispanic Origin Data;* and 2000 to 2050 from *Population Projections of the United States, by Age, Sex, Race, and Hispanic Origin: 1993 to 2050*, Current Population Reports, P25-1104, U.S. Government Printing Office, Washington, DC, 1993.

Figure 2-16.
Black and Hispanic Origin Population 85 Years and Over: 1990 to 2050

(In millions)
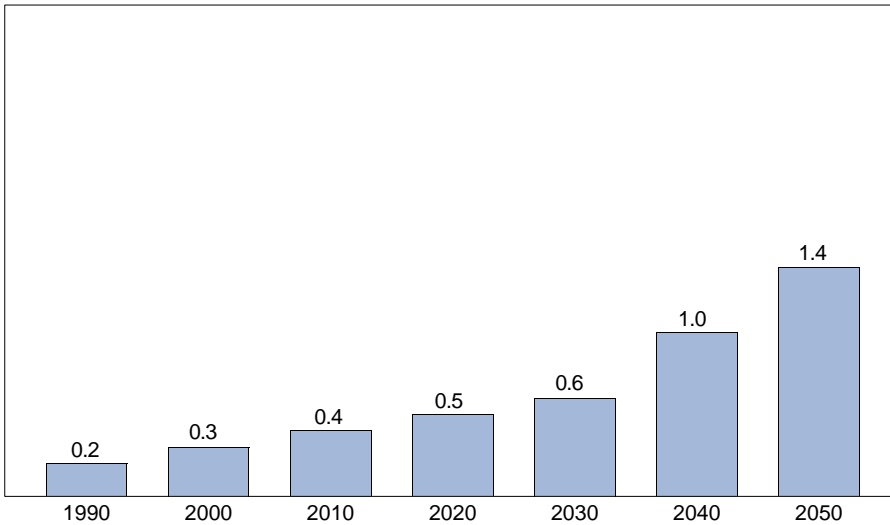
Black

Hispanic Origin[1]
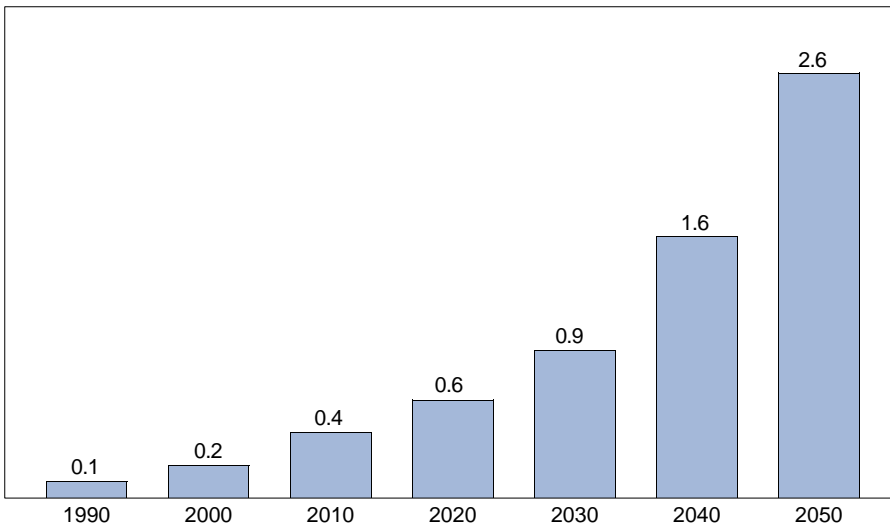
The Black population 85 years and over[12] would increase from only 223,000 in 1990 to 1.4 million by 2050 (figure 2-16). The number of Hispanics who are 85 or older was small (91,000) in 1990, but their rapid growth rate is projected to produce an oldest old Hispanic population by 2050 of 2.6 million.

—————

[12] Blacks have accounted for a smaller share of the 85-and-over population in recent censuses than in earlier censuses. The decline, however, likely reflects improvement in age reporting because of improved knowledge of actual age through the wider availability of birth certificates and increased literacy. Thus, the result is likely a diminished tendency to exaggerate age among the oldest old.

[1] Hispanic origin may be of any race.
    Source: U.S. Bureau of the Census, 1990 from 1990 Census of Population and Housing, CPH-L-74, *Modified and Actual Age, Sex, Race, and Hispanic Origin Data*; and 2000 to 2050 from *Population Projections of the United States, by Age, Sex, Race, and Hispanic Origin: 1993 to 2050*, Current Population Reports, P25-1104. U.S. Government Printing Office, Washington, DC, 1993.

The White population has a higher proportion elderly than any other race group or Hispanics (figure 2-17). This fact is related to the better chance of survival to age 65 of Whites and lower recent fertility. Further, immigration may be a contributing factor. The White non-Hispanic proportion of recent immigrants over the past 30 years has declined. In part because immigrants typically are much younger than 65, other groups, especially Hispanics and Asians, are typically younger populations. In 1990, over 13 percent of the White population was elderly compared with 8 percent of the Black population, 6 percent of the AIEA and API groups combined, and 5 percent of the population of Hispanic origin. By 2050 (when the Baby-Boom generation is 85 years and over), about 14 percent of Black Americans and Hispanics could be 65 or older. A larger proportion of the White population (23 percent) may be elderly.

About one-fifth of elderly Blacks and elderly Hispanics were 80 years or older in 1990. By 2050, the proportions for elderly Blacks could increase to almost one-third, to over one-third for Hispanics, and be even higher (40 percent) for Whites (figure 2-18).

Figure 2-17.
Percent Elderly by Race and Hispanic Origin: 1990 and 2050

1 Hispanic origin may be of any race.

Source: U.S. Bureau of the Census, 1990 from *U.S. Population Estimates, by Age, Sex, Race, and Hispanic Origin: 1980 to 1991*, Current Population Reports, P25-1095, U.S. Government Printing Office, Washington, DC, 1993; 2050 from *Population Projections of the United States, by Age, Sex, Race, and Hispanic Origin: 1993 to 2050*, Current Population Reports, P25-1104, U.S. Government Printing Office, Washington, DC, 1993. (Middle series projections).

Figure 2-18.
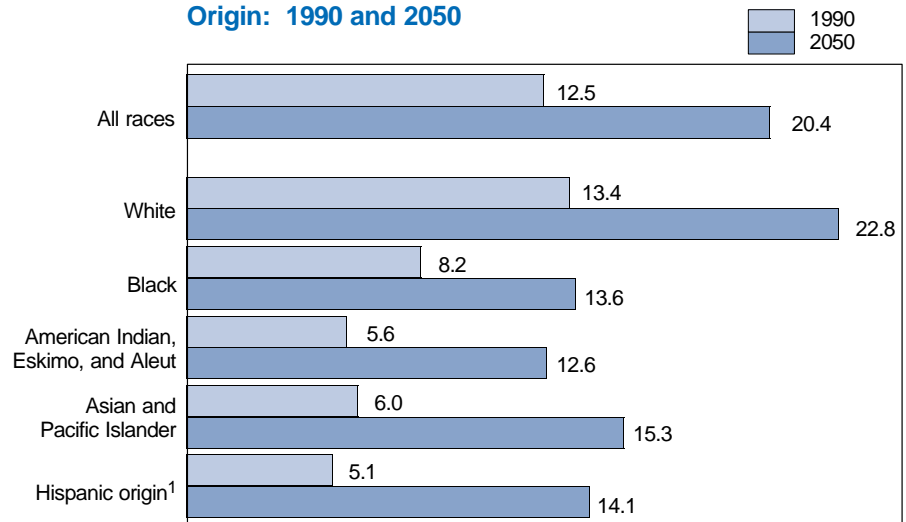**Percent of the Population 65 Years and Over Who Are 80 Years or Older: 1990 and 2050**
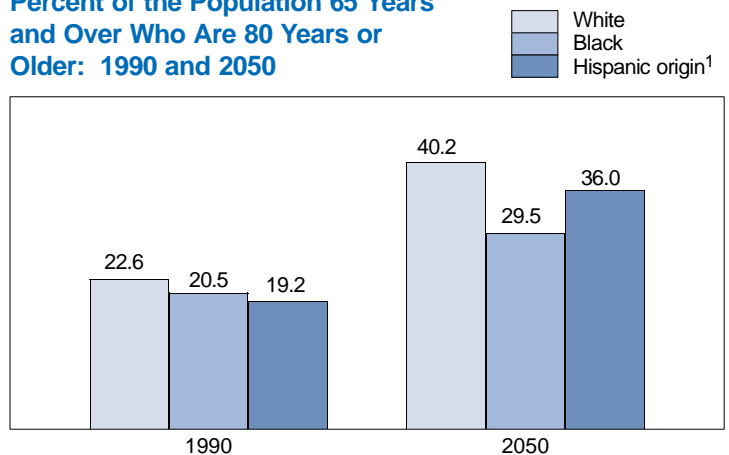
1 Hispanic origin may be of any race.

Source: U.S. Bureau of the Census, 1990 from 1990 Census of Population and Housing, CPH-L-74, *Modified and Actual Age, Sex, Race, and Hispanic Origin Data*; 2050 from *Population Projections of the United States, by Age, Sex, Race, and Hispanic Origin: 1993 to 2050*, Current Population Reports, P25-1104, U.S. Government Printing Office, Washington, DC, 1993. (Middle series projections).

Familial Support Ratios

More People Will Face Caring for Frail Relatives

More and more people in their fifties and sixties are likely to have surviving parents, aunts, and uncles. Increases in length of life may result in children having a greater likelihood of knowing grandparents and great-grandparents, although delayed parenthood and increased childlessness are factors that partially counter this likelihood. More people will face the concern and expense of caring for their very old, frail relatives since so many people now live long enough to experience multiple, chronic illnesses. A fair proportion (26 percent) of the Baby-Boom generation was childless in 1990. (The last half of the Baby Boom is still in the childbearing years and so the percent childless should still decrease.).[13] Those without children may face institutionalization at earlier ages than persons with surviving adult children.

An approximate idea of things to come can be seen in two familial support ratios (table 2-5): the "parent support" ratio and the "sandwich generation" ratio. Such ratios reflect the way age composition affects the number of elderly persons relative to other specified age groups. The ratios are used as an estimate of elderly generations even though persons who are part of the age group in the numerator are not necessarily in the same families as the age group for the denominator. Thus, the ratios are only a rough indication of need for family support over time.

Table 2-5.
Parent and Sandwich Generation Support Ratios: 1950 to 2050

(For meaning of abbreviations and symbols, see introductory text)

Ratio and race/Hispanic origin	1950	1993	2010	2030	2050
Parent Support Ratio [1]					
Total	3	10	11	16	29
White	3	11	11	17	33
Black	3	7	7	9	15
Other races	2	4	7	13	21
Hispanic origin [2]	(NA)	6	7	11	21
Sandwich Generation Ratio [3]					
Total	144	200	166	299	267
White	148	205	172	319	286
Black	[4] 97	171	131	242	216
Hispanic origin [2]	(NA)	139	118	217	204

[1] Ratio of persons 85 years old and over to persons 50 to 64 years old.

[2] Hispanic origin may be of any race.

[3] Ratio of persons aged 18 to 22 enrolled in college plus persons aged 65 to 79 to persons aged 45 to 49 years. College enrollment for 2010-2050 is based on 1993 rates for 18-to-22-year olds (Total, 40.3 percent; White, 41.8 percent; Black, 27.8 percent; Hispanics, 26.2 percent).

[4] 1950 data are for "Black and other races" combined. Over 90 percent of "Black and other races" were Black in 1950.

Source: U.S. Bureau of the Census, 1950 from 1950 Census of Population, Volume 2, Part 1, Chapter C, Tables 97 and 112; 1993 from Population Paper Listing (PPL-8), *U.S. Population Estimates, by Age Sex, Race and Hispanic Origin: 1990 to 1993*, 2010 to 2050 from *Projections of the Population of the United States, by Age, Sex, Race and Hispanic Origin: 1993 to 2050*, Current Population Reports, P25-1104, U.S. Government Printing Office, Washington, DC, 1993 (middle series projections), table 2.

[13] U.S. Bureau of the Census, *Fertility of American Women: June 1990*, Current Population Reports, Series P-20, No. 454, U.S. Government Printing Office, Washington, DC, 1991, tables H and J.

The parent support ratio is defined here as the number of persons aged 85 years and over per 100 persons aged 50 to 64 years. In 1950, relatively few people had to worry about caring for the frail elderly. The parent support ratio tripled from 1950 to 1993 and will likely triple again over the next six decades. It is highest for Whites but changes in this ratio are meaningful to every race and ethnic group. The oldest old are the most likely to have pressing needs for economic and physical support. The need for help is likely to come at the very time when the adult children (here estimated as the age group 50 to 64 years) of the frail oldest old are thinking about or have reached the age of retirement. Some of the 50-to-64-year-old group bear health limitations of their own.

There is no historical precedent for the experience of most middle-aged and young-old persons having living parents. When the parents of these middle-aged persons share a home with an adult child, usually the adult child is a daughter. Also, a large proportion of women are not married during their parent-care years, due to the increase in divorce rates, decrease in marriage rates, and increase in survivorship at the oldest ages. These changing marital patterns are influencing patterns of parent care, particularly with regard to the formation and maintenance of shared adult child/elderly parent households.[14]

Compared with 1950, more people give more difficult care for a longer time period. Additionally, life expectancy has increased for the disabled,

the mentally retarded, and the chronically ill. Overall, today's caregivers provide care that may be much more physically and psychologically demanding than that given in 1950 (especially given the increased number of elderly with chronic physical ailments and long-term cognitive diseases).

As medical technology provides more ways to save lives, we can expect to see the duration of chronic illness, and consequently the need for help, increase even more. The strain of caring for frail elderly could affect worker productivity. Women in their fifties and sixties in particular, leave the work force or work part time in order to care for frail relatives at just the time when they want to work for retirement benefits in their own old age. Other women have responsibility for frail relatives while adjusting to their own retirement, widowhood, and reduced incomes.

Part of the Baby-Boom generation has been referred to as "the sandwich generation" with the idea that these middle-aged persons have joint responsibilities for the support of children enrolled in college and parents (table 2-5). While there certainly are families bearing the double burden of paying for college and supporting frail elderly persons at the same time, most families do not have children in college full-time. In 1993, only 15 percent of families had at least one dependent aged 18 to 24; of these families, only 41 percent had at least one child attending college full time.[15] Additionally, most middle-aged

persons do not have elderly parents who are frail. In general, this situation arises after age 80 when severe mental and physical ailments become common and economic resources are more reduced. Most parents of persons aged 45 to 49 are likely to be under age 80. Nevertheless, the potential burden is greater now than in 1950 when the young were less likely to attend college and there were relatively fewer frail oldest old.

Jennings and Bennefield[16] found that about 13 percent of all persons receiving financial support were parents of the provider (56 percent were children under age 21). In an earlier study, O'Connell et al.[17] showed that in 1985 the overall odds of providing financial support to parents was 1 in 208. Although a similar analysis was not done for the Jennings and Bennefield analysis of 1988 data, the authors believe the results would have been comparable to the findings from the 1985 data. In 1988, there were 1.7 million parents (of any age) who received financial support from their adult children. Most of the parents (1.5 million) lived in private homes. The likelihood of making voluntary payments to parents is strongly related to the income available to pay. The mean family income of those providing parental financial support was $44,000. The mean level of support was about $1,300. Both the Jennings

[14] Elaine M. Brody, Sandra J. Litvin, Christine Hoffman, and Morton H. Kleban, "Marital Status of Caregiving Daughters and Co-Residence With Dependent Parents," *The Gerontologist*, Vol. 35, No. 1, 1995, pp. 75-85.

[15] Rosalind R. Bruno and Andrea Adams, U.S. Bureau of the Census, *School Enrollment—Social and Economic Characteristics of Students: October 1993*, Current Population Reports, P20-479, Washington, DC, October 1994.

[16] Jerry T. Jennings and Robert L. Bennefield, U.S. Bureau of the Census, *Who's Helping Out? Support Networks Among American Families: 1988*, Current Population Reports, Series P-70, No. 28, Washington, DC, March 1992.

[17] Martin O'Connell, Jerry T. Jennings, Enrique J. Lamas, and John M. McNeil, U.S. Bureau of the Census, *Who's Helping Out? Support Networks Among American Families*, Current Population Reports, Series P-70, No. 13, Washington DC, October 1988, pp. 2, 7-8, 10, 12-13 and tables D, H, I, J, and K.

and Bennefield study and O'Connell et al. established that the only consistently significant variable in their model that was positively related to the level of support for parents was family income. Social and demographic variables were not statistically significant. Of the 2.3 million persons aged 45 to 64 years who provided financial support to nonhousehold members in 1988, only 5 percent (108,000) provided support to both children and adults (presumably some of whom were adults under age 65). Persons aged 45 to 64 years were supporting nearly 2 million adults outside their households. These supported persons were more likely to be an adult child aged 21 and over (37 percent) than a parent (25 percent).

More elderly get financial help than give it[18] but support is not a one-way street. Among the elderly who provided financial support to persons outside their household, about 687,000 provided support to other adults and 48,000 to children (5,000 elderly supported both adults and children). The elderly averaged support payments of $3,600. About half of all adults receiving support in nursing homes received the support from their children (and about 10 percent from a spouse).[19]

Some grandparents, in addition to the regular financial support described

above, provide babysitting support. Casper, Hawkins, and O'Connell used the Fall 1991 Survey of Income and Program Participation (SIPP) to show that some 971,000 children under age 15 were cared for in their own homes by their grandparents (of any age).[20] Another 1.1 million were cared for in another home (presumably most often the grandparent's home). Seventy-five percent of these 2.1 million children were under age 5. Where the employed mother was White, grandparents provided 15 percent of the primary care arrangements for children under age 5 compared with 20 percent where the employed mother was Black. Grandparents played an important role in providing care for their preschool grandchildren. About 16 percent of children under 5 years of age who were receiving care, were cared for by a grandparent(s) during the mother's working hours. Grandparents were especially likely to provide care for their preschool grandchildren if the employed mother was a lone parent (never married; widowed; divorced; or married, husband absent—including separated). Grandparents were the primary source of care for 25 percent of lone mothers' children, and for 14 percent of married mothers' children.

Some grandparents also have their adult children and grandchildren living in their homes. Saluter[21] found that in 1993, 3.4 million grandchildren under 18 years lived in homes maintained by their grandparents. This represented 5 percent of all children

under 18 years, up only slightly from 3 percent of all children in 1970. Of these grandchildren, 14 percent had both parents living with them, 49 percent had only their mother present, 7 percent had only the father present, and 30 percent had no parents present. Nearly one-fourth of the grandchildren had grandparents who were 65 years old and over; 5 percent were 75 and over.[22] Black grandchildren were more likely to live in their grandparents' homes (12 percent) than were White children (4 percent). Black grandchildren were also more likely to be living with only their grandparents (39 percent versus 25 percent for White). Among Hispanic children, 6 percent lived in their grandparents' home. Of these, 23 percent lived with only their grandparents (not statistically different from that for Whites).

Furukawa[23], using SIPP data, found that 4.7 million children under age 18 in 1991 lived with at least one grandparent, representing 7 percent of all children under age 18 years. Among children living with at least one grandparent, when both parents of the child also were present in the household, only 38 percent lived in the grandparent's home. By comparison, when only one parent of the child was present in the household, 81 percent lived in the grandparent's home. Since children are the unit of analysis in this study, rather than families, further research is needed to explain the implications of this observed difference in the percent of children who live in

18 Ibid. O'Connell et al. showed that the characteristics of the elderly make them unlikely as providers of financial help. The typical elderly person in 1985 was a woman who did not complete high school and 2 in 3 had family incomes below $15,000. As many as 3.4 million were low-income widows. See p. 12 of Current Population Reports, Series P-70, No. 13.

19 Jerry T. Jennings and Robert L. Bennefield, U.S. Bureau of the Census, *Who's Helping Out? Support Networks Among American Families: 1988*, Current Population Reports, Series P-70, No. 28, Washington, DC, March 1992, tables C, D, and I.

20 Lynne M. Casper, Mary Hawkins, and Martin O'Connell, U.S. Bureau of the Census, *Who's Minding the Kids? Child Care Arrangements: Fall 1991*, Current Population Reports, P70-36, Washington, DC, 1994, table E.

21 Arlene F. Saluter, U.S. Bureau of the Census, *Marital Status and Living Arrangements: March 1993*, Current Population Reports, P20-478, Washington, DC, 1994, p. XII.

22 Claudette E. Bennett, U.S. Bureau of the Census, *The Black Population in the United States: March 1994 and 1993*, Current Population Reports, P20-480, Washington, DC, 1995, table I.

23 Stacy Furukawa, U.S. Bureau of the Census, *The Diverse Living Arrangements of Children: Summer 1991*, Current Population Reports, P70-38, Washington, DC, 1994, table 12.

the grandparent's home. One could speculate that among multigenerational households, when two parents are living with child(ren) and the child's grandparent(s), the parents may be more likely to provide support; whereas, when a single parent is living with child(ren) and the child's grandparent(s), the grandparent(s) may be more likely to provide support.

Being a grandparent is not synonymous with being elderly. In the three preceding studies, the results discuss grandparents who may be of any age. Thus, many grandparents who are: 1) providing babysitting support, 2) householders, or 3) living with children under age 18, are not aged 65 years and over.

Societal Support Ratios

The Ratio of Elderly Persons to Those of Working Age Will Nearly Double From 1990 to 2050

With changes in the balance of the numbers and proportions of persons in broad age groups, public policy issues often arise. We can show broad changes in our age structure by societal support ratios (SR). These are ratios of the number of youth (under age 20) and elderly (65 years and over) per one hundred persons aged 20 to 64 years, the principal ages for participation in the labor force.

Changes in support ratios provide an indirect broad indication of periods when we can expect the particular age distribution of the country to affect the need for distinct types of social services, housing, and consumer products. While not all youth and elderly require support nor do all working-age persons provide direct support to youth or elderly family members, support ratios nevertheless are useful as crude indicators of potential
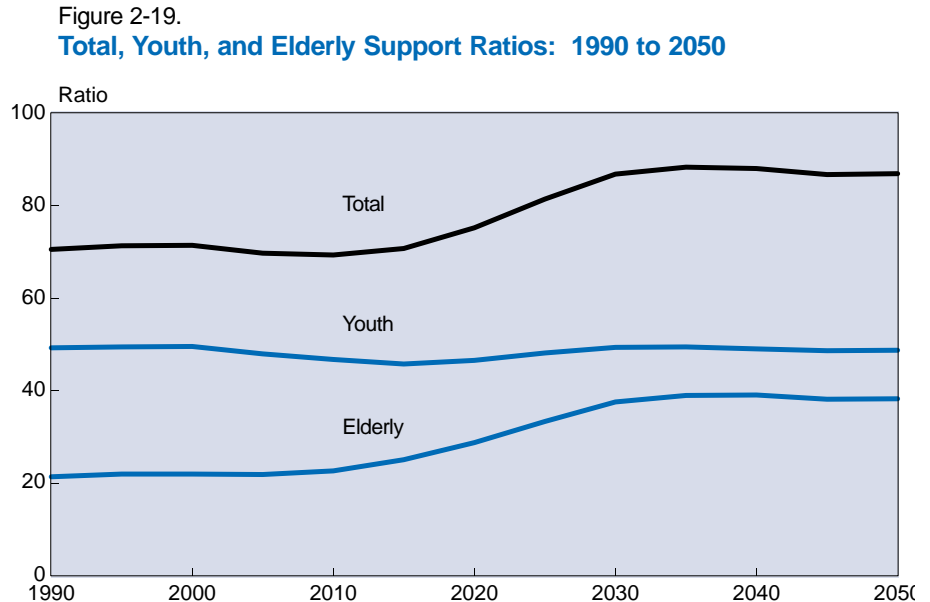
Figure 2-19.
Total, Youth, and Elderly Support Ratios: 1990 to 2050

Note: Youth Ratio is the number of persons under age 20 divided by the number of persons aged 20 to 64 times 100. Elderly Ratio is the number of persons 65 years and over divided by the number of persons aged 20 to 64 times 100. Total Support Ratio is the sum of the Youth Support Ratio and the Elderly Support Ratio.

Source: U.S. Bureau of the Census, 1990 from 1990 Census of Population and Housing, CPH-L-74, *Modified and Actual Age, Sex, Race, and Hispanic Origin Data;* 2050 from *Population Projections of the United States, by Age, Sex, Race, and Hispanic Origin: 1993 to 2050,* Current Population Reports, P25-1104, U.S. Government Printing Office, Washington, DC, 1993. (Middle series projections).

change in the levels of economic and physical support needed. Some argue that the stability of the total SR over time is more pertinent to policy makers than the changes in the composition of the support ratio. Others argue that it is more important to know the balance of old versus young because the relative costs of supporting the young are probably less than for the elderly. Further, the costs of young people are borne by families more than by government programs (with the major exception of education). One major criticism of such ratios, which also are termed "dependency ratios," is that, by using age only for their construction, they ignore the fact that there are many

economically independent older persons, as well as economically dependent unemployed adults.[24] Certainly, much depends on the health and economic resources of the aged of the future, as well as the general robustness of the employment situation.

The total SR (youth plus elderly in relation to the working-age population) was 71 youth and elderly per 100 of working age in 1990 (figure 2-19). The total SR would decrease somewhat over the next two decades as the youth ratio declines while the

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[24] Robert H. Binstock, "The Oldest-Old and 'Intergenerational Equity'," Chapter 19 in *The Oldest Old*, Richard M. Suzman, David P. Willis, and Kenneth G. Manton, (eds), 1992.

Figure 2-20.
Ratio of Youth and Elderly to Other Adults by Race and Hispanic Origin: 1990 and 2050

Legend: 1990, 2050

Youth

	1990	2050
Total	49.2	48.7
White	46.7	45.7
Black	64.7	61.5
Other races[1]	57.1	50.0
Hispanic origin[2]	69.8	60.6

Elderly

	1990	2050
Total	21.3	38.2
White	22.7	42.9
Black	14.7	25.4
Other races[1]	9.9	26.6
Hispanic origin[2]	9.2	26.4

[1] Includes Asian and Pacific Islanders, as well as American Indian, Eskimo, and Aleut.

[2] Hispanic origin may be of any race.

Note: Youth Ratio is the number of persons under age 20 divided by the number of persons aged 20 to 64 times 100. Elderly Ratio is the number of persons 65 years and over divided by the number of persons aged 20 to 64 times 100.

Source: U.S. Bureau of the Census, 1990 from 1990 Census of Population and Housing, CPH-L-74, *Modified and Actual Age, Sex, Race, and Hispanic Origin Data;* 2050 from *Population Projections of the United States, by Age, Sex, Race, and Hispanic Origin: 1993 to 2050*, Current Population Reports, P25-1104, U.S. Government Printing Office, Washington, DC, 1993. (Middle series projections).
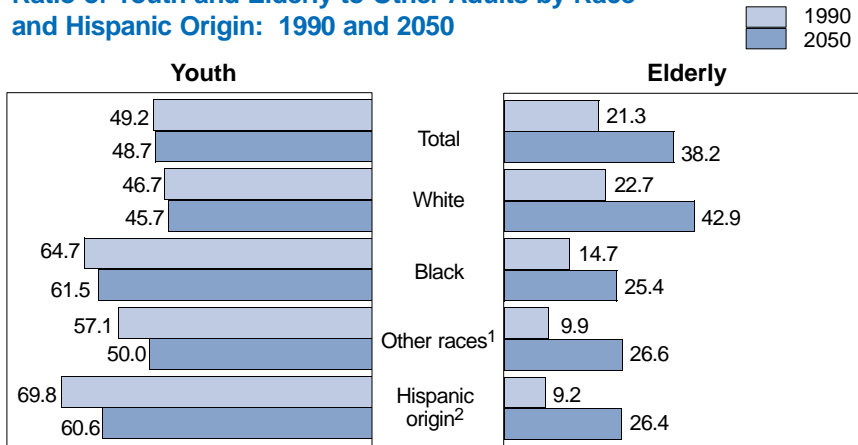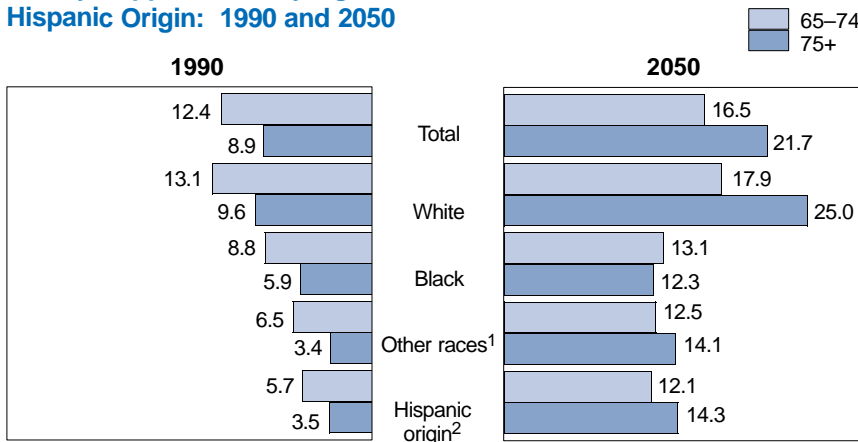
Figure 2-21.
Elderly Support Ratio by Age, Race, and Hispanic Origin: 1990 and 2050

Legend: 65–74, 75+

1990

	65–74	75+
Total	12.4	8.9
White	13.1	9.6
Black	8.8	5.9
Other races[1]	6.5	3.4
Hispanic origin[2]	5.7	3.5

2050

	65–74	75+
Total	16.5	21.7
White	17.9	25.0
Black	13.1	12.3
Other races[1]	12.5	14.1
Hispanic origin[2]	12.1	14.3

[1] Includes Asian and Pacific Islanders, as well as American Indian, Eskimo, and Aleut.

[2] Hispanic origin may be of any race.

Note: Elderly ratio is the number of persons 65 years and over divided by the number of persons aged 20 to 64 times 100.

Source: U.S. Bureau of the Census, 1990 from 1990 Census of Population and Housing, CPH-L-74, *Modified and Actual Age, Sex, Race, and Hispanic Origin Data*; 2050 from *Population Projections of the United States, by Age, Sex, Race, and Hispanic Origin: 1993 to 2050*, Current Population Reports, P25-1104, U.S. Government Printing Office, Washington, DC, 1993.

elderly support ratio will generally increase slightly. The SR would then begin to climb after 2010 and peak around 2035 as the Baby Boom reaches their elder years and the population of the traditional working ages declines. By 2050, the total SR would be 87 compared with 71 in 1990. The youth support ratio will remain relatively stable throughout the coming decades, with about 1 youth for every 2 persons in the productive ages.

From 1990 to 2050, the total SR would increase most for Whites, from 69 to 89. There will be a profound shift in the composition of the total SR as the support ratio for the elderly population increases while the support ratio for the young population decreases for all groups (figure 2-20). For example, for the Hispanic population, there would be some decrease in the youth SR but the elderly SR would more than double.

The most telling point about the elderly SR is that the population 75 years and over is an increasingly larger proportion of the total elderly population (figure 2-21). Those aged 75 years and over are more likely than those aged 65 to 74 years to have health and disability limitations and reduced economic resources. For each racial and ethnic group, those aged 65 to 74 years comprise the largest proportion of the elderly SR in 1990. By 2050, however, the population 75 years and over could be more than half the elderly SR for each group, except for the Black population. For Blacks, the number of persons aged 65 to 74 years is projected to approach, but remain less than, the 75 and over population.

Our Aging World

Population Aging Is Worldwide

To set the aging of the United States in context, it is useful to look at aging in the rest of the world. Fertility rates and infant and maternal mortality have declined in most nations. Also, mortality from infectious and parasitic diseases has declined. The world's nations generally have improved other aspects of health and education. All of these factors have interacted so that every major region in the world shows an increased proportion of the population that will be 65 or older by 2020.

There were 357 million persons aged 65 and over in the world in 1994 (table 2- 6).[25] They represent 6 percent of the world's population. By the year 2000, there would be about 418

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[25] The data for this section are from the Census Bureau's International Data Base on Aging. This file can be obtained from the National Archive of Computerized Data on Aging, a project of the Inter-university Consortium for Political and Social Research, University of Michigan, PO Box 1248, Ann Arbor, MI 48106 (telephone: 313-936-1752).

million elderly. The annual growth rate for the elderly was 2.8 percent in 1993-94 (compared with an average annual rate for the total world population of 1.6 percent). Such growth is expected to continue far into the 21st century.

Numerical growth of the elderly population is worldwide. It is occurring in both developed and developing countries. The average annual growth rate in 1993-94 of persons 65 years and over was 3.2 percent in developing countries compared with 2.3 percent in the developed world. In absolute numbers, from 1993 to 1994, the net balance of the world's elderly population (65 years and over) increased by over 1,000 persons every hour. Of this increase, 63 percent occurred in developing countries.

Over half (55 percent) of the world's elderly lived in developing nations in 1994. These developing regions could be home to nearly two-thirds (65 percent) of the world's elderly by the year 2020. Thirty nations had

elderly populations of at least 2 million in 1994 (table 2-7). Current population projections indicate there will be 55 such nations by 2020.

Among countries with more than 1 million population, Sweden has the highest proportion of people aged 65 and over, with 18 percent in 1994—about the same as the state of Florida. Sweden also has the highest proportion aged 80 and over with 5 percent. The Caribbean is the oldest of the major developing regions with 7 percent of its population 65 or older in 1994.

By 2020, the elderly will constitute from one-fifth to nearly one-fourth of the population of many European countries. For example, Census Bureau projections indicate that 23 percent of Germany's population would be elderly compared with 22 percent for Italy, Finland, Belgium, Croatia, Denmark, and Greece. The elderly population of 12 additional European countries with more than 1 million population will constitute at

Table 2-6.
World Population by Age and Sex: 1994 and 2000

Year and age	Population (millions)			Percent			Males per 100 females
	Both sexes	Male	Female	Both sexes	Male	Female	
1994							
All ages	5,640	2,841	2,798	100.0	100.0	100.0	101.5
Under 15 years	1,790	917	873	31.7	32.3	31.2	105.1
15 to 64 years	3,492	1,771	1,722	61.9	62.3	61.5	102.9
65 years and over ..	357	153	204	6.3	5.4	7.3	75.2
2000							
All ages	6,161	3,103	3,057	100.0	100.0	100.0	101.5
Under 15 years	1,877	962	915	30.5	31.0	29.9	105.2
15 to 64 years	3,866	1,959	1,907	62.7	63.1	62.4	102.8
65 years and over ..	418	182	236	6.8	5.9	7.7	77.1

Source: U.S. Bureau of the Census, International Data Base.

Table 2-7.
Projected Population for Countries With More Than Two Million Elderly: 1994 and 2020

(In thousands, based on rank in 1994)

Country/area	Rank		Population aged 65 years and over	
	1994	2020	1994	2020
China, Mainland	1	1	71,073	168,318
India	2	2	36,282	87,797
United States	**3**	**3**	**33,169**	**53,348**
Russia	4	5	17,384	26,050
Japan	5	4	17,140	32,231
Germany	6	7	12,476	18,551
Italy	7	9	9,259	13,012
United Kingdom	8	11	9,175	12,018
France	9	10	8,924	12,969
Ukraine	10	13	7,155	9,917
Brazil	11	8	7,098	18,084
Indonesia	12	6	6,875	19,476
Spain	13	16	5,768	8,086
Pakistan	14	14	5,078	9,448
Poland	15	19	4,216	7,536
Mexico	16	12	3,882	10,625
Bangladesh	17	15	3,727	8,949
Vietnam	18	22	3,570	6,610
Canada	19	24	3,401	6,287
Argentina	20	27	3,246	5,022
Turkey	21	17	3,141	7,835
Nigeria	22	18	2,818	7,666
Thailand	23	20	2,809	7,234
Romania	24	29	2,700	4,398
Philippines	25	21	2,603	6,631
Iran	26	25	2,368	5,199
South Korea	27	23	2,367	6,607
Australia	28	32	2,116	3,857
Egypt	29	26	2,094	5,047
Netherlands	30	34	2,040	3,467
Colombia	*	28	*	4,446
South Africa	*	30	*	4,253
Burma	*	31	*	4,028
China, Taiwan	*	33	*	3,490
Ethiopia	*	35	*	3,224
Morocco	*	36	*	2,924
North Korea	*	37	*	2,734
Sri Lanka	*	38	*	2,584
Peru	*	39	*	2,535
Venezuela	*	40	*	2,486
Saudi Arabia	*	41	*	2,475
Algeria	*	42	*	2,413
Greece	*	43	*	2,348
Zaire	*	44	*	2,332
Chile	*	45	*	2,274
Czech Republic	*	46	*	2,205
Belgium	*	47	*	2,199
Hungary	*	48	*	2,181
Malaysia	*	49	*	2,133
Uzbekistan	*	50	*	2,132
Kazakhstan	*	51	*	2,084
Serbia	*	52	*	2,078
Portugal	*	53	*	2,061
Belarus	*	54	*	2,021
Sweden	*	55	*	2,016

Source: U.S. Bureau of the Census, International Data Base.

Note: * indicates population in 1994 was less than two million.

least one-fifth of the total country population. The United States would be 16 percent.

Japan's population age 65 and over is expected to grow dramatically in the coming decades. According to projections, the percentage of Japan's population that is elderly could grow from 14 percent (17.1 million) in 1994 to 17 percent (21.0 million) in 2000 and to 26 percent (32.2 million) by 2020 (table 2-8). This is a rapid rise in a short time. Japan's population 80 years and over also is projected to grow very rapidly, from 3 percent of their total population in 1994 to 7 percent by 2020. Already the Japanese are reducing retirement benefits and making other adjustments to prepare for the economic and social results of a rapidly aging society.

In 1994, the world had an estimated 61 million persons aged 80 or older. That number is expected to increase to 146 million by the year 2020. Persons 80 years and over constituted only 1 percent of the world's total population in 1994 and more than 20 percent of the world's elderly (28 percent in developed countries, 16 percent in developing nations).

Developed Countries Now Have Most of World's Oldest Population

Although the developed countries of the world represented only 22 percent of the total world population in 1994, the majority of the world's population aged 80 and over live in developed countries. However, it is projected that by 2020, the majority will live in developing countries. For many nations, the 80-and-over age group will be the fastest growing portion of the elderly population. In 2000, 26 percent of the elderly in the United States would be 80 or older which, among countries with a population size of at

Table 2-8.
Projected Population by Age for Japan: 1994, 2000, and 2020
(In thousands)

Age	1994	2000	2020
Total, all ages	125,107	127,554	126,062
0 to 24 years	39,795	36,145	31,669
25 to 54 years	53,002	53,915	47,297
55 to 59 years	7,906	8,793	7,641
60 to 64 years	7,263	7,609	7,224
65 to 69 years	6,081	6,983	8,097
70 to 74 years	4,340	5,728	8,396
75 to 79 years	3,122	3,897	6,376
80 years and over	3,59	74,483	9,362
55 years and over	32,309	37,494	47,097
65 years and over	17,140	21,092	32,231

Source: U.S. Bureau of the Census, International Data Base.

Table 2-9.
Projected Population for Countries With More Than One Million Persons Aged 80 Years and Over: 1994 and 2020

(In thousands, based on rank in 1994)

Country/area	Rank		Population aged 80 years and over	
	1994	2020	1994	2020
China, Mainland	1	1	9,010	28,737
United States	**2**	**2**	**7,760**	**13,007**
India	3	3	4,021	12,639
Japan	4	4	3,597	9,362
Russia	5	5	3,317	7,191
Germany	6	6	3,313	5,889
France	7	8	2,563	3,754
United Kingdom	8	9	2,342	3,400
Italy	9	7	2,221	4,142
Ukraine	10	12	1,421	2,923
Spain	11	13	1,287	2,488
Brazil	*	10	*	3,132
Indonesia	*	11	*	3,034
Mexico	*	14	*	2,296
Poland	*	15	*	1,877
Turkey	*	16	*	1,751
Canada	*	17	*	1,595
Thailand	*	18	*	1,477
Pakistan	*	19	*	1,385
Romania	*	20	*	1,264
South Korea	*	21	*	1,221
Vietnam	*	22	*	1,199
Argentina	*	23	*	1,072
Iran	*	24	*	1,039

Note: * indicates population 80 years and over in 1994 was less than one million.

Source: U.S. Bureau of the Census, International Data Base.

least 5 million, would rank sixth, behind Sweden, Denmark, Switzerland, Cuba, and the United Kingdom.

In 1994, China had the largest number of persons aged 80 or older followed by the United States (table 2-9). Nine additional countries had over 1 million persons 80 years and over in 1994. By 2020, this list is expected to include 13 additional countries, 10 of which are developing countries. In many developing countries, the population 80 and over in 2020 is likely to at least quadruple from 1994. This highlights the problems governments may have in planning support services for this burgeoning population group.

The rapid growth of the oldest old has various health and economic implications for individuals, families, and governments throughout the world. The oldest old often have severe chronic health problems which demand special attention. The nature and duration of their illnesses are likely to produce a substantial need for prolonged care. Developing nations already have diluted resources. They are the most limited in being able to provide preventive measures and, in future years, supportive services. The United States and other countries face enormous investments and payments to maintain current levels of services for the oldest old.