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TRENDS IN
DEMOGRAPHIC STRUCTURE
IN NORWAY
1960—2000

By
Jon Inge Lian

ENDRINGER I
BEFOLKNINGSSTRUKTUREN
I NORGE
1960—2000

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PREFACE

This article presents data on the development in fertility, mortality, migration and family formation since 1960, and its consequences with regard to the demographic structure, in particular the size of important age groups, such as school ages, labour force and old age pensioners. Some comments are also given as to the probable development for the next 20 years, based on the population projection from 1979.

The article is an extract from a paper produced on request from World Health Organization (WHO), wishing to compile background data for an international survey on trends in the demographic structure and their health and social implications.

Central Bureau of Statistics, Oslo, 28 October 1981

Arne Øien

FORORD

Denne artikkelen gir tall for utviklingen siden 1960 når det gjelder fruktbarhet, dødelighet, flytting og familiedannelse, og viser virkningen på befolkningsstrukturen, særlig på viktige aldersgrupper som skolealder, yrkesaktiv alder og pensjonsalder. Noen kommentarer er også knyttet til den sannsynlige utviklingen i de neste 20 år basert på befolkningsframskrivningen fra 1979.

Artikkelen er et utdrag av et materiale som er sendt til World Health Organization (WHO, Verdens helseorganisasjon), og som skal nyttes i en internasjonal oversikt over demografiske utviklingstendenser og deres betydning for tiltak innenfor helse- og sosialsektoren.

Statistisk Sentralbyrå, Oslo, 28. oktober 1981

Arne Øien

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- : Not for publication
- Nil
- 0 Less than 0.5 of unit employed
- 0,0 Less than 0.05 of unit employed

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1. INTRODUCTION

The present article describes the recent demographic trends in Norway and population projections for the next 20 years. The article follows the outlines given by WHO, Regional Office for Europe. Demographic trends having implications for health and social services and policies within these sectors have been accentuated.

Chapters 2-6 describe the demographic trends during the last 20 years. Trends in mortality, fertility, family formation and migration are shown in the chapters 2-5, while chapter 6 is meant to discuss some implications for the population structure with regard to sex, age, marital status, economic activity, urbanization etc.

In chapter 7 population projections are presented for the total population and for the age groups 0 - 19 years, 20 - 59 years and 60 years and over separately. Implications for health and social services are discussed in connection with each broad age group. Future development in fertility, family formation, employment participation and dependency ratio and the increasing need for care of old people are among the main topics.

By the end of 1980 Norway had 4 092 340 inhabitants, about 500 000 more than in 1960. Towards the year 2000 the population will continue to grow, but more and more slowly. The reason for this is a decreasing number of births and an increasing number of deaths. The underlying cause is, however, the great changes in fertility and thus in the age structure of the population. The following summary table gives the main features of the development from 1960. More details about the components will be given in the following chapters.

Summary table: Population trends in Norway 1960 - 2000

Year	Population by the end of the year/ period (1 000)	Annual average				Net re- produc- tion rates	Age struc- tures by the end of the period(per cent)	
		Live births	Deaths	Net migra- tion	Popula- tion growth (percent)		0 - 19 years	60 years and more
1960 ..	3 595	61 880	32 543	-5 145	0,8	1,329	33,2	16,2
1961 - 1965 ..	3 738	63 989	34 994	- 411	0,8	1,370	33,2	17,3
1966 - 1970 ..	3 888	66 987	37 522	853	0,8	1,291	32,2	18,2
1971 - 1975 ..	4 017	61 393	39 568	4 835	0,7	1,074	31,4	19,2
1976 - 1980 ..	4 092	51 744	40 714	4 143	0,4	0,845	29,7	20,4
1976 ..	4 035	53 474	40 216	4 889	0,5	0,892	31,0	19,4
1977 ..	4 051	50 877	39 824	5 034	0,4	0,835	30,7	19,7
1978 ..	4 066	51 749	40 682	3 974	0,4	0,842	30,3	19,9
1979 ..	4 079	51 580	41 567	2 746	0,3	0,837	30,0	20,1
1980 ..	4 092	51 039	41 280	4 071	0,3	0,820	29,7	20,4
1981 - 1990 ¹⁾	4 201	51 881	43 359	4 000	0,25	0,805	26,2	20,9
1991 - 2000 ¹⁾	4 265	52 059	49 614	4 000	0,15	0,800	24,8	19,2

1) Projection, alternative L-1 1979 (low fertility).

2. MORTALITY

The number of deaths per year in Norway has increased from about 32 500 in 1960 to 41 300 in 1980. In the same period the life expectancy for a newborn has increased with 1.24 years for males and 2.76 years for females (table 2.1). The rising number of deaths must therefore be a result of changes in the age structure of the population. A larger part of the population now consists of elderly people with higher death risk. The reason for the increasing number in older ages are the large cohorts born between 1895 and 1923 and the long-term decrease in mortality, especially among children and young people.

Table 2.1. Expectation of life for males and females at selected ages

Sex Year	Age. Years										
	0	1	5	10	20	30	40	50	60	70	80
Males											
1961-1965	71,03	71,42	67,74	62,94	53,34	43,93	34,58	25,62	17,60	11,04	6,12
1966-1970	71,09	71,22	67,51	62,69	53,08	43,61	34,22	25,32	17,33	10,87	6,14
1971-1975	71,41	71,38	67,63	62,80	53,21	43,76	34,36	25,41	17,44	10,88	6,18
1976-1977	72,12	71,91	68,11	63,23	53,59	44,10	34,67	25,68	17,71	11,10	6,34
1978-1979	72,27	71,97	68,16	63,29	53,62	44,15	34,67	25,71	17,71	11,10	6,38
Females											
1961-1965	75,97	76,13	72,37	67,49	57,66	47,87	38,22	28,88	20,06	12,29	6,53
1966-1970	76,83	76,77	72,99	68,10	58,28	48,49	38,81	29,47	20,64	12,83	6,97
1971-1975	77,68	77,43	73,60	68,71	58,89	49,10	39,41	30,04	21,18	13,19	7,13
1976-1977	78,42	78,11	74,26	69,35	59,53	49,73	40,03	30,60	21,78	13,76	7,47
1978-1979	78,73	78,34	74,46	69,55	59,71	49,91	40,19	30,79	21,92	13,91	7,59

Females have a longer life expectancy than males, and the difference is now 6.5 years. Death rates have shown a decreasing tendency for women at all ages. Although the increase in life expectancy has been largest for newborn girls, women at the age of 40 years can expect to live 2 years more today than they could according to calculations in the early 1960s.

For males, life expectancy has shown a continuous increase only for the youngest ages. At the age of 40 a man can, according to the present mortality rates, only expect to live 1 month longer than was the case in 1961 - 1965, and compared with the period 1951 - 1955 the life expectancy for a 40 year old man has actually decreased with about 1 year. The reason for this trend must be found in rising death rates from cardiovascular diseases.

Table 2.2 Sex and age-specific death rates from cardiovascular diseases.
Deaths per 100 000 population

Year ¹⁾	Total	Age. Years					
		-39	40 - 49	50 - 59	60 - 69	70 - 79	80-
Males							
1951 - 1955	348	7	82	311	942	2 781	7 484
1956 - 1960	424	7	99	360	1 105	3 141	8 244
1961 - 1965	496	8	112	429	1 281	3 367	8 936
1966 - 1970	539	7	143	456	1 389	3 489	8 733
1971 - 1975	554	7	139	458	1 315	3 542	8 688
1976	538	7	120	449	1 273	3 333	8 006
1977	533	6	135	471	1 200	3 246	7 893
1978	539	6	141	447	1 230	3 273	7 776
1979	547	6	123	459	1 232	3 296	7 874
Females							
1951 - 1955	375	5	42	174	689	2 594	7 747
1956 - 1960	418	4	38	161	685	2 718	8 280
1961 - 1965	456	4	39	152	688	2 742	8 683
1966 - 1970	450	3	40	141	633	2 447	7 823
1971 - 1975	462	3	36	129	534	2 273	7 640
1976	449	4	36	119	489	2 020	7 077
1977	440	3	33	128	470	1 931	6 745
1978	451	3	27	112	484	1 982	6 676
1979	455	3	27	104	477	1 878	6 742

1) Annual average for the 5-year period.

The considerable increase in expectation of life for newborn but not for older ages is connected with the decrease in infant mortality (table 2.3). Death rates for the first week of life have been reduced to under one half in 20 years. A corresponding trend is seen for stillbirth rate and thus for perinatal mortality. For infants after the first week the death rates have been reduced from 6.9 to 4.1 per 1 000 live births. The great reduction in infant mortality relates to changes in social and economic conditions, with a marked progress in the health care system, sanitation and hygiene.

Table 2.3 Perinatal and infant mortality

Year	Death per 1 000 births		Deaths per 1 000 live births	
	Still- births	Perinatal mortality	Under 1 week	Infant mortality (under 1 year)
1961 - 1965	12,4	22,5	10,2	17,1
1966 - 1970	11,1	20,1	9,0	13,9
1971 - 1975	9,1	16,4	7,4	11,6
1976 - 1980 ¹⁾	7,2	12,0	4,9	9,0
1976	7,3	13,2	6,0	10,5
1977	7,6	13,1	5,5	9,2
1978	6,6	11,1	4,5	8,6
1979	7,2	11,6	4,5	8,8
1980	7,0	11,0	4,0	8,1

In 1979, 60 per cent of deaths among males and 76 per cent of deaths among females applied to age 70 years and over. The greatest number of deaths in 5-year age groups was found for males 75 - 79 years and females 80 - 84 years. During the last 20 years, death rates for males have been rather constant from the age of 40, while death rates for females have decreased from the age of 30 (table 2.4). Death rates for children and youth up to 15 years have shown a decreasing tendency.

Table 2.4 Age-specific death rates for males and females

Age. Years	Deaths per 100 000 population						
	Males						
	1961- 1965	1966- 1970	1971- 1975	1976	1977	1978	1979
0 - 4	490	407	330	264	237	234	235
5 - 9	62	55	51	31	40	33	46
10 - 14	45	40	39	34	32	31	30
15 - 19	94	97	108	95	99	82	93
20 - 24	120	111	114	111	110	125	108
25 - 29	119	107	109	103	94	86	105
30 - 34	142	142	127	120	110	117	112
35 - 39	195	181	183	182	169	150	163
40 - 44	280	288	277	222	265	255	263
45 - 49	420	468	451	439	452	472	436
50 - 54	717	729	736	746	769	678	748
55 - 59	1 183	1 203	1 210	1 178	1 196	1 184	1 177
60 - 64	1 916	1 979	1 935	1 964	1 773	1 868	1 932
65 - 69	3 044	3 240	3 085	3 041	2 964	2 966	2 968
70 - 74	4 755	5 076	5 094	5 001	4 819	4 899	4 856
75 - 79	7 581	7 799	7 885	7 644	7 818	7 689	7 975
80 - 84	12 436	12 433	12 416	11 944	11 410	11 780	11 889
85 - 89	19 611	19 058	18 804	18 724	18 585	18 100	17 612
90 -	31 307	31 099	30 368	30 693	28 686	29 211	29 396

Deaths per 100 000 population						
Females						
1961- 1965	1966- 1970	1971- 1975	1976	1977	1978	1979
373	306	228	219	171	182	170
33	29	29	26	24	29	16
24	22	24	23	23	15	18
32	38	35	32	31	39	28
36	37	33	37	34	39	37
42	40	42	41	36	38	39
62	56	59	63	54	46	42
104	96	86	70	81	89	74
159	153	142	121	129	122	133
247	242	232	200	219	211	219
374	369	361	379	349	340	357
610	590	547	566	558	546	508
1 058	978	893	900	830	849	851
1 804	1 744	1 537	1 463	1 464	1 457	1 493
3 435	3 148	2 913	2 605	2 570	2 545	2 445
6 114	5 700	5 305	4 907	4 829	4 933	4 777
11 105	10 065	9 449	8 926	8 568	8 438	8 796
17 979	16 405	16 267	15 658	14 694	15 031	14 146
30 570	27 278	27 328	26 674	25 119	24 641	26 564

The ratio between male and female death rates is still very high for the age group 15 - 29 years. The excess in male mortality is mainly due to the sex differences in mortality from accidents and suicides. The sex difference in mortality from accidents also exists in older ages, but here differences in mortality from cardiovascular diseases are dominating. While females have experienced decreasing death rates from cardiovascular diseases since 1950, the male mortality showed an opposite trend up to about 1970. By 1970, however, the male mortality from cardiovascular diseases seems to have reached a peak in most ages, and has shown a decreasing tendency since then.

The recent trend seen in male excess mortality seems to support the hypothesis that differences in social level and way of life are important explanatory factors. In addition to differences found in studies on occupation and mortality, studies on marital status have shown a considerable excess mortality for unmarried and divorced men.

The influence of differences in way of life is also supported by studies where mortality among adventists has been compared to mortality in total population. Corresponding death rates show that life expectancy for adventists exceeds the average with 4 years for males and 2 years for females. A main reason is probably the adventists' healthy diet and living habits (Hjort & Waaler 1981).

Studies on mortality by occupation show low mortality risks for teachers and farmers, and high mortality risks for seamen and for hotel and restaurant workers. These differences may be interpreted as supporting the way of life hypothesis, even though some differences may be expected from the working conditions for the various occupations, such as accident among ship's crew (Glattre & Haldorsen 1976).

Studies on regional differences in mortality also indicate the importance of differences in way of life related to the degree of urbanization, industrial variations etc. Old manufacturing counties have a higher mortality level than the average, while rural counties are in a favourable situation. Independent of the degree of urbanization a regional pattern in mortality seems to exist, as the Northern part of Norway has a remarkably higher mortality than other counties, except Oslo (Skiri 1978).

In chapter 6 the consequences of the trends in mortality will be discussed in relation to age and sex structure of the population. It is, however, quite clear that the population is growing older, and that an increasing part of the population over 70 years will be women.

3. FERTILITY

The tendency towards an ageing population is also related to trends in fertility. Fertility rates describe the ratio between the number of births and the number of women in the child-bearing age. In spite of an increasing number of women in the child-bearing age, the number of births per year has decreased by 16 000 in ten years, to about 51 000 births in 1977. The change in the net reproduction rate has thus been even more dramatic. From 1.36 in 1966 it was reduced to 0.83 in 1977 (table 3.1). With a reproduction rate at this level the population will not be able to reproduce itself in the long run.

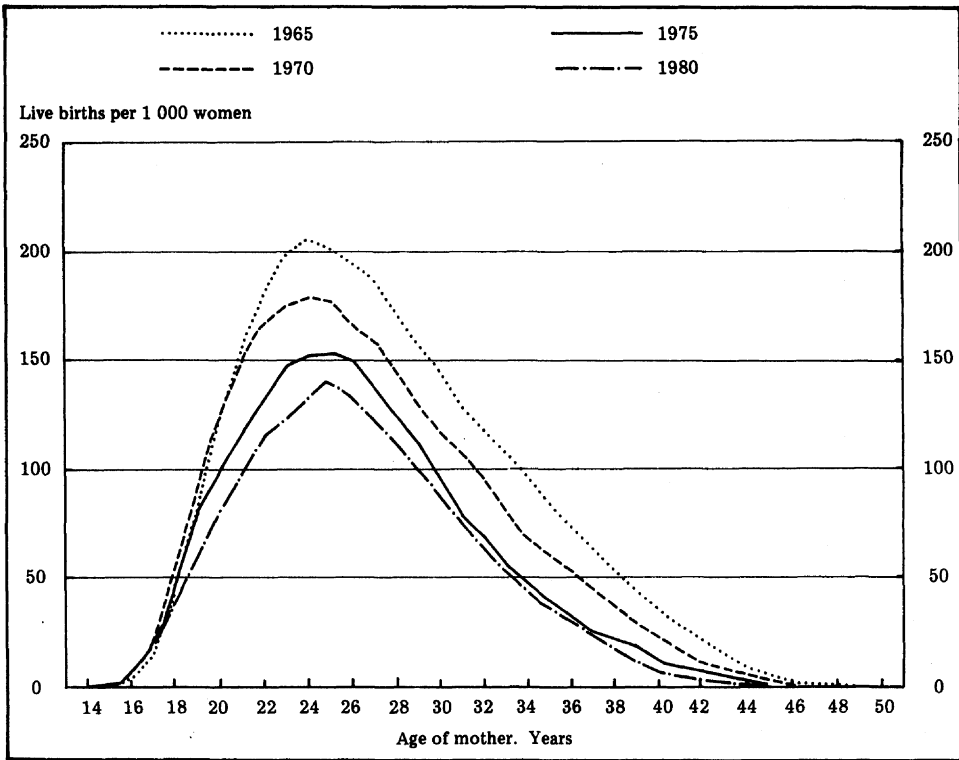
Table 3.1. Age-specific fertility rates, total fertility and reproduction rates. Annual average

Year	Live births per 1 000 women							Live births per 1 000 women 15-44 years	Total fertility ¹⁾	Reproduction rates	
	Age of women. Years									Gross ²⁾	Net ³⁾
	15-19	20-24	25-29	30-34	35-39	40-44	45-49				
1961-1965	37,9	178,0	177,3	112,7	58,1	18,7	1,3	89,3	2,942	1,411	1,370
1966-1970	43,7	175,1	164,6	98,5	48,7	14,1	1,0	92,3	2,732	1,320	1,291
1971-1975	44,0	151,8	140,6	73,7	31,3	7,6	0,4	81,5	2,243	1,094	1,074
1976-1980	29,9	115,5	120,7	62,4	22,1	4,4	0,2	64,4	1,771	0,860	0,845
1976	35,7	126,0	120,6	63,0	23,5	5,0	0,3	68,5	1,863	0,908	0,892
1977	32,3	116,0	117,5	60,6	20,9	4,4	0,2	64,3	1,753	0,851	0,835
1978	29,0	113,9	121,8	63,4	22,1	4,5	0,2	64,5	1,769	0,857	0,842
1979	27,3	113,6	121,1	62,4	22,2	4,0	0,2	63,3	1,750	0,850	0,837
1980	25,2	108,3	122,4	62,8	21,9	4,1	0,2	61,6	1,722	0,833	0,820

1) Total of one-year age-specific fertility rates 15-49 years. 2) The average number of live-born daughters born to a woman passing through the whole child-bearing period (15-44 years), according to the existing fertility rates. 3) The average number of life-born daughters born to a woman passing through the child-bearing period 15-44 years exposed at each age to the existing fertility and mortality rates.

The fertility rates have declined for all age groups since 1960 (figure 3.1). The reduction is relatively greatest among women 30 years and over, but greatest in number for the most fertile period 20 - 29 years. The decrease occurred first for women 30 years and over and spread later to younger women. During the last five years the fertility rates for women 25 years and over have been relatively constant, while the fertility rates for younger women have been decreasing.

Figur 3.1. Age-specific fertility rates 1965, 1970, 1975 and 1980



It is hypothesized that women over 30 reduced their fertility in the 1960s and early seventies because they already had the children they wanted. The number of births of order 3 and more was going down.

For the young women it is suggested that the births are put off to a later period of the marriage. However, the fertility for higher ages has not yet increased, and this means that delayed births seem to result in lower total fertility. Possible causes may be urbanization, increased education and employment activity among women, changing attitudes to family size and better methods of contraception.

Table 3.2. Legitimate live births by order of birth. Per cent

Year	Total	Order of birth					
		1	2	3	4	5	6 and over
1961-1965 ...	100	34,2	30,5	19,5	9,1	3,9	2,8
1966-1970 ...	100	38,3	30,5	17,7	8,1	3,2	2,2
1971-1975 ...	100	41,9	34,0	15,2	5,6	2,0	1,3
1976-1980 ...	100	42,7	37,3	14,3	3,9	1,1	0,7
1976	100	43,5	36,4	13,9	4,0	1,3	0,9
1977	100	43,1	37,4	13,9	3,8	1,1	0,7
1978	100	42,7	37,6	14,1	3,8	1,1	0,7
1979	100	42,1	37,5	14,8	3,9	1,0	0,6
1980	100	41,9	37,8	14,8	3,9	1,0	0,7

Table 3.3. Live births by age of mother. Per cent

Year	Total		Age of mother. Years						
	N	Per cent	15-19 ¹⁾	20-24	25-29	30-34	35-39	40-44	45-
1961-1965	63 989	100	7,5	31,1	27,6	18,7	10,9	3,9	0,3
1966-1970	66 987	100	7,9	38,2	28,4	14,9	7,8	2,6	0,2
1971-1975	61 393	100	7,6	36,1	35,3	14,2	5,2	1,3	0,1
1976-1980	51 744	100	8,7	33,6	34,4	17,6	4,8	0,8	0,0
1976	53 474	100	10,0	35,0	33,9	15,6	4,5	0,9	0,1
1977	50 877	100	9,5	34,3	34,0	17,0	4,3	0,8	0,0
1978	51 749	100	8,4	33,3	34,5	18,3	4,7	0,8	0,0
1979	51 580	100	8,0	33,3	34,5	18,4	5,0	0,8	0,0
1980	51 039	100	7,6	32,1	35,4	18,8	5,3	0,8	0,0

1) Mothers of age 13 years and 14 years are included (5-10 births each year).

An important aspect like nuptiality must also be considered. Since fertility rates differ for non-married and married women, it could be possible that lower fertility is connected with changes in marriage rates. Later, in chapter 4, we shall see that the marriage rates have indeed changed. However, the fertility rates for married women seem to show almost the same pattern of decrease as for all women (Halvorsen 1980). Fertility rates for non-married women increased during the 1960s, but have been relatively constant since 1970. Since 1970 the nuptiality has decreased for women under 30 years. The share of illegitimate live births has thus increased from 4.0 per cent in 1961 - 1965 to 12.4 per cent in 1976 - 1980. Of stillbirths, 16.3 per cent were born out of wedlock in 1976 - 1980. Almost one half of the women who were granted abortion was unmarried. While fertility rates vary markedly with age, the abortion rates are more constant, but have a maximum level at the age 15 - 24 years (23 per 1 000 women).

If we study the total number of pregnancies, the abortions will give greatest contribution to the fertility rates for the youngest (15 - 19 years) and oldest women (35 years and over). For these ages the abortion rates are nearly as high as the fertility rates. The number of abortions per 1 000 women 15 - 44 years has risen from 6.2 in 1966 and 10.7 in 1970 to a present level of about 16, while the number of live births has decreased by about 30 per 1 000 women 15 - 44 years during the same period. However, the changes in abortion figures do not coincide with the changes in legislation.

A study from 1978 showed that the average number of children among women born around 1920 differ more between urban and non-urban areas than between occupations (Dyrvik 1978). How these trends are for women born 1950 or later we don't know. The regional pattern of fertility is characterized by the high fertility in Northern and Western Norway, while Eastern Norway, in particular Oslo, has low fertility (Skiri 1978).

4. FAMILY FORMATION

Family formation is an important aspect of population development. Fertility rates are affected by it, and so are death rates and the need for care of old people. Single persons seem to have worse dwelling conditions and more absence from paid work. They are more often unemployed or disability pensioners. There is thus a correlation between marital status and certain soci-economic problems.

Table 4.1 and 4.2 indicate that a new pattern of family formation seems to have emerged by 1970. The number of marriages is going down, and the number of marriages dissolved is increasing. From 1978 on there were fewer marriages contracted than marriages dissolved. The marriage rates decreased for all ages from about 1970. Later in the 1970s especially men and women under 25 years had reduced marriage rates. The tables also show that divorced men and women are more likely to remarry than unmarried people are to marry.

Table 4.1. Marriages contracted and dissolved. Separations

Year ¹⁾	Marriages	Marriage dissolved			Separations
		Total	By death	By divorce	
1961 - 1965	24 300	17 418	14 922	2 496	2 546
1966 - 1970	29 055	19 560	16 524	3 036	3 434
1971 - 1975	27 898	22 023	17 393	4 630	6 004
1976 - 1980	23 677	24 119	17 836	6 283	7 826
1976	25 389	23 590	17 765	5 825	7 237
1977	24 022	23 621	17 522	6 099	7 497
1978	23 690	24 032	17 786	6 246	7 486
1979	23 055	24 766	18 158	6 608	8 271
1980	22 230	24 584	17 950	6 634	8 641

1) Annual average for the 5-year period.

Years						
25-29	30-34	35-39	40-44	45-49	50-54	55-59
per 1 000 never married						
168,0	99,9	50,4	27,6	15,8	7,9	4,6
180,1	96,7	46,5	23,0	12,6	7,1	4,1
160,6	80,7	36,3	18,1	9,7	5,4	3,0
125,0	73,0	33,9	16,3	8,3	5,0	2,6
138,3	76,4	36,7	16,2	9,2	5,5	2,7
129,8	75,2	34,1	17,6	8,7	4,8	3,1
124,8	72,9	32,7	16,4	7,5	5,9	2,6
118,4	72,8	33,5	14,7	7,7	4,7	0,8
112,5	69,1	33,1	16,6	8,2	4,2	2,1
182,4	85,6	44,3	22,6	12,1	6,5	3,2
176,7	80,4	38,3	20,3	11,3	6,1	3,1
163,7	70,4	36,3	16,2	10,1	5,2	2,8
128,2	65,5	32,1	15,3	8,1	4,1	2,2
141,0	69,8	31,2	16,5	8,4	4,4	2,3
131,5	72,0	38,2	19,1	8,7	4,1	1,7
128,0	63,2	32,3	12,7	6,7	4,6	2,9
126,1	62,2	31,1	16,5	9,4	3,8	2,0
118,0	61,7	28,8	11,7	7,1	3,2	2,2
per 1 000 divorced						
280,4	234,8	149,1	122,3	63,5	50,6	40,3
267,4	197,6	131,3	78,1	53,8	34,3	22,1
166,2	124,4	103,0	69,9	51,3	27,4	17,2
297,0	188,0	99,4	59,0	34,3	18,3	11,7
223,2	136,0	81,4	53,9	31,4	18,4	9,1
142,7	95,0	65,2	42,0	30,8	17,0	5,9

The average age at marriage was at its lowest in 1970 (table 4.3). From 1973 the average age at marriage started to increase due to reduced marriage activity, especially among persons under 30 years. The increase took place in spite of changes in the age structure of the unmarried part of the population (table 4.6). While the observed average age at marriage increased by about 1 year for both sexes from 1971 to 1980, a calculation assuming that a cohort of unmarried of age 15 years lives through the age-dependent marriage rates in the observation year, results in a 2-year increase in the average age at marriage. The calculated average age at marriage was 27.4 years for males and 24.9 years for females in 1980. However, about 40 per cent of the males and 50 per cent of the females still marry at the age 20 - 24 years.

Table 4.3. Marriages by age of partners. Per cent

Sex and year	Age. Years								Average age at marriage	
	Total	-19	20-24	25-29	30-34	35-39	40-44	45-	All married	Single
Males										
1961-1965	100,0	6,0	41,5	27,7	10,8	5,4	3,3	5,3	27,8	26,4
1966-1970	100,0	5,5	52,0	25,2	7,5	3,5	2,2	4,1	26,5	25,3
1971-1975	100,0	5,0	49,8	29,7	7,3	2,8	1,7	3,7	26,5	25,2
1976-1980	100,0	3,1	42,6	32,4	11,6	4,2	2,1	4,0	27,5	25,9
1976	100,0	3,9	45,9	31,1	9,7	3,6	2,0	3,8	27,0	25,5
1977	100,0	3,5	44,1	31,5	11,1	3,8	2,0	4,0	27,3	25,7
1978	100,0	2,8	43,0	32,3	11,8	4,1	2,1	4,0	27,5	25,9
1979	100,0	2,5	40,6	33,1	12,6	4,7	2,3	4,2	27,9	26,1
1980	100,0	2,4	38,7	34,3	13,2	5,0	2,3	4,1	27,9	26,2
Females										
1961-1965	100,0	24,7	48,0	13,6	4,8	3,1	2,2	3,6	24,5	23,4
1966-1970	100,0	22,6	55,7	12,4	3,3	1,8	1,4	2,8	23,7	22,8
1971-1975	100,0	22,6	52,6	15,7	3,9	1,7	1,0	2,5	23,8	22,8
1976-1980	100,0	16,9	51,5	18,5	6,6	2,6	1,4	2,5	24,7	23,3
1976	100,0	19,8	51,7	16,9	5,8	2,1	1,2	2,5	24,3	22,9
1977	100,0	18,2	52,0	17,1	6,5	2,5	1,3	2,5	24,5	23,1
1978	100,0	17,0	51,7	18,2	6,7	2,6	1,4	2,5	24,7	23,2
1979	100,0	15,0	51,2	19,9	6,9	2,9	1,4	2,6	25,1	23,6
1980	100,0	14,2	50,9	20,8	7,0	3,1	1,5	2,5	25,1	23,6

By the same method (using marriage rates 1979 - 1980 on a cohort), one can find the percentages that are still unmarried at different ages. At the age of 30 years almost 40 per cent of the males would be unmarried (20 per cent in 1970) and 25 per cent of the females (10 per cent in 1970). At the age of 50 years 20 per cent of the males (8 per cent in 1970) and 14 per cent of the females (5 per cent in 1970) would be unmarried.

When analysing regional patterns in marriage rates, one has to realize that due to migration the number of unmarried males and females in the "right" age of marriage may not coincide. Missing partners of opposite sex may thus be the reason for low marriage rates. Taking this into consideration it seems that Northern Norway has low rates of marriage. This part of the country has high prevalence of cohabitation without marriage, high proportion of illegitimate births and high abortion rates.

Southern and Western Norway seem to have high marriage rates, while Oslo, which is the county with the best balance between men and women in the "right" age of marriage, only has marriage rates equal to the whole country (Skiri 1978).

It seems that regions with low marriage rates have a high proportion of cohabitation without marriage, and vice versa. Thus, the proportion of women living in a union, marital or non-marital, has been virtually constant (Brunborg 1979).

The mean age at marriage for divorced men was 43.7 years in 1961 - 1965 and 39.2 years in 1980. For women the figures were 38.3 and 36.1 years respectively. The decrease in mean age at remarriage is due to higher divorce rates, and consequently higher number of divorced persons, in the younger age groups. In 1961 - 1965 about 8 per cent of the males and females who married were previously married. In 1980 this share had increased to 13 per cent, of whom 90 per cent were divorced.

While the marriage rates are decreasing, the divorce rates are increasing in all age groups. The age group having the highest divorce risk is 25 - 29 years. The mean age at divorce is now about 38 years for males and 35 years for females. The decrease in mean age at divorce from 1960 to 1970 is related to the decrease in age at marriage, changes in age structure of the population, and of course changes in divorce rates. Half of the divorces happen during the first nine years of the marriage. The fourth or fifth year of marriage seems to be the period of highest divorce risk. It is important to note that the number of divorces by court decree and the number of divorces petitioned by one of the partners have been fairly con-

stant, while divorces petitioned by both partners have been increasing. In 1980, 91 per cent of the divorces were after legal separations of 1-2 years, and 86 per cent were divorces petitioned by both partners.

The central parts of Eastern Norway, in particular Oslo, have the highest rates of divorce.

Table 4.4. Divorce rates for married males and females in different age groups. Annual average

Sex and year	Divorced per 1 000 married and separated												
	Age. Years												
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-	15-
Males													
1959-1962	2,6	6,1	5,9	4,6	3,9	3,2	2,8	2,1	1,7	1,0	0,6	0,2	2,8
1969-1972	2,2	6,5	8,7	7,5	5,8	4,5	3,3	2,7	1,8	1,2	0,8	0,3	3,9
1976-1980	3,3	10,0	13,0	12,1	10,6	9,0	6,5	4,1	2,7	1,5	0,8	0,3	6,5
1976	2,6	10,0	11,7	11,4	10,4	8,0	5,9	3,7	2,5	1,4	0,7	0,2	6,0
1977	4,5	10,7	12,7	12,1	10,1	8,5	5,7	3,9	2,5	1,6	0,7	0,3	6,3
1978	1,9	10,1	12,8	12,1	10,0	9,2	6,7	3,9	2,8	1,3	0,9	0,4	6,4
1979	4,9	9,7	14,8	12,2	10,7	9,5	7,2	4,5	2,7	1,6	0,8	0,3	6,8
1980	2,6	9,2	13,4	12,6	11,5	9,7	7,3	4,8	2,8	1,5	0,9	0,3	6,8
Females													
1959-1962	2,6	6,2	5,2	3,9	3,5	3,1	2,6	1,7	1,2	0,7	0,4	0,2	2,8
1969-1972	3,2	7,8	8,4	6,3	4,7	3,5	2,9	2,2	1,4	0,9	0,5	0,2	3,8
1976-1980	4,1	12,3	13,4	11,1	9,5	7,4	4,8	2,9	1,8	1,0	0,6	0,2	6,5
1976	4,4	11,9	12,0	10,6	8,7	6,3	4,4	2,9	1,7	0,8	0,6	0,1	6,0
1977	3,2	12,6	13,1	10,9	8,8	6,5	4,8	2,8	1,7	1,0	0,5	0,2	6,3
1978	4,7	12,3	13,4	11,2	9,0	7,3	4,7	2,7	1,8	1,1	0,7	0,3	6,4
1979	3,5	12,9	14,4	11,4	10,1	8,4	5,0	2,8	1,8	0,9	0,6	0,2	6,8
1980	4,6	12,0	14,2	11,6	10,4	8,4	5,2	3,2	1,9	1,1	0,5	0,2	6,8

The increase in divorces and decrease in marriages will change the population structure as to marital status. This kind of change is, however, a long-term operation, and high rates of remarriage may to a certain extent counterbalance this trend. For males and females 40 years and over the proportion of unmarried has been decreasing, and this was also the case for the age group 30 - 39 years between 1960 and 1970 (table 4.5.). These trends are consequences of reduced average age at marriage and increased marriage rates in earlier periods of their life (about 1960).

Table 4.5. Males and females by age and marital status. Per cent

Age. Years		Males					Females				
		Total	Un- mar- ried	Mar- ried	Sepa- rated, divor- ced	Wi- dowed	Total	Un- mar- ried	Mar- ried	Sepa- rated, divor- ced	Wi- dowed
15-19 years	1960	100	99,4	0,6	0,0	-	100	95,2	4,7	0,0	0,0
	1970	100	99,2	0,8	0,0	-	100	94,4	5,5	0,1	0,0
	1980	100	99,8	0,2	0,0	-	100	97,6	2,3	0,0	0,0
20-29 years	1960	100	60,4	38,9	0,7	0,1	100	34,2	64,4	1,2	0,2
	1970	100	53,5	45,3	1,2	0,0	100	32,6	65,2	2,0	0,2
	1980	100	63,3	34,5	2,1	0,0	100	42,9	53,0	3,9	0,2
30-39 years	1960	100	20,4	77,8	1,6	0,2	100	11,2	85,9	2,1	0,9
	1970	100	15,8	81,2	2,7	0,2	100	7,6	88,3	3,1	1,0
	1980	100	16,0	76,9	6,9	0,2	100	8,5	82,7	8,1	0,8
40-49 years	1960	100	14,0	83,2	2,1	0,8	100	12,1	82,0	2,9	3,1
	1970	100	13,1	83,3	2,9	0,7	100	7,8	85,6	3,4	3,2
	1980	100	10,7	81,1	7,6	0,6	100	5,3	83,8	7,8	3,1
50-59 years	1960	100	13,4	81,9	2,3	2,4	100	17,2	70,7	3,0	9,2
	1970	100	12,0	82,9	3,0	2,1	100	10,6	76,4	3,7	9,3
	1980	100	11,5	80,9	5,5	2,0	100	7,0	78,0	5,5	9,6
60-69 years	1960	100	13,3	76,8	2,1	7,8	100	20,4	54,9	2,7	21,9
	1970	100	12,5	79,0	2,6	5,9	100	16,5	58,0	3,3	22,2
	1980	100	11,1	79,4	3,8	5,6	100	10,1	62,3	4,3	23,3
70-	1960	100	12,4	56,9	1,3	29,3	100	21,3	29,1	1,6	48,0
	1970	100	12,5	61,7	1,8	24,0	100	20,8	29,3	2,7	47,2
	1980	100	11,8	64,6	2,2	21,4	100	17,3	29,2	3,0	50,5

Table 4.6. Unmarried, married and previously married males and females 15 years and over, by age. Per cent

Sex, marital status and year	Total	Age. Years							
		15-19	20-29	30-39	40-49	50-59	60-69	70-	
MALES									
Unmarried	1960	100	33,0	30,8	12,2	8,6	6,9	5,1	3,4
	1970	100	34,7	35,7	7,3	7,0	6,4	5,1	3,9
	1980	100	32,6	40,0	9,5	4,3	5,2	4,5	3,9
Married	1960	100	0,1	9,7	22,7	25,0	20,6	14,2	7,6
	1970	100	0,1	14,6	18,0	21,4	21,3	15,4	9,2
	1980	100	0,0	11,4	24,1	17,2	19,0	17,0	11,2
Previously married	1960	100	0,0	2,1	6,1	10,0	13,5	21,1	47,2
	1970	100	0,0	4,5	7,4	10,4	14,9	18,8	43,9
	1980	100	0,0	5,6	17,7	13,9	14,2	16,1	32,6
FEMALES									
Unmarried	1960	100	35,0	19,5	7,5	8,6	10,7	10,1	8,6
	1970	100	38,5	25,1	4,2	5,0	7,1	9,3	10,9
	1980	100	38,2	32,7	6,0	2,7	4,0	5,8	10,7
Married	1960	100	0,7	15,4	24,3	24,6	18,6	11,4	5,0
	1970	100	0,9	19,7	19,0	21,6	20,1	12,8	6,0
	1980	100	0,4	16,8	24,4	17,5	18,6	14,9	7,5
Previously married	1960	100	0,0	1,7	4,2	9,1	16,2	25,9	42,8
	1970	100	0,0	2,9	3,9	7,4	15,2	25,1	45,4
	1980	100	0,0	4,3	8,7	7,5	12,0	21,9	45,5

In the age group 20 - 29 years the proportion of unmarried increased during the 1970s, indicating a change in the pattern of marriage after 1970 for persons born in 1950 and later.

There is some uncertainty about the duration of this pattern. It is suggested that it is now more usual to live together without being married as a first stage. After some years, if the cohabitation lasts, and maybe a child is expected, then a formal marriage takes place.

Table 4.7 shows that the rate of cohabitation without marriage is highest for 20 - 24 year old women.

If this hypothesis of delayed marriages is correct, then the married share of the 1950-cohort may increase to the same level as previous cohorts when they get older.

Table 4.7. Women in different age groups, by cohabitation form. Per cent. 1977

Age. Years (year of birth)	Total	Not co- habiting	Married	Cohabiting without marriage	Number of women
All	100	24	71	5	4 137
18-19 (1958 - 1959)	100	86	8	6	320
20-24 (1953 - 1957)	100	43	45	12	846
25-29 (1948 - 1952)	100	14	81	5	931
30-34 (1943 - 1947)	100	10	87	2	866
35-39 (1938 - 1942)	100	12	86	2	640
40-44 (1933 - 1937)	100	11	87	1	534

Source: NOS Fertility Survey 1977.

The proportion of divorced has grown in all age groups. In the age group 30 - 59 years it seems to outweigh the decrease in unmarried persons. As a result, the proportion of married people in this age group was fairly the same in 1980 as in 1960.

For persons 60 years and over there is great difference in distribution by marital status for males and females. Females are to a larger degree than males widowed, and the proportion of widowed females has increased. This is due to a low and decreasing female mortality making more women survive their husbands. Naturally, the increase in the number of old, single women affects the need for nursing homes and care in private homes.

Family statistics show that couples with children have fewer children and are reducing their share of the total number of families (table 4.8). From 1960 to 1970 the reduced share was due to an increased number of couples without children. From 1970 the reason has been more single persons, especially old women, and more single mothers with children. The number of persons per family is thus going down. This makes the family unit more vulnerable if sickness or an accident should occur, and the possibility to get care at home from own family members has been reduced. Migration and changing settlement patterns have contributed to a further institutionalization of this kind of care. Family members are often living too far away, and the willingness to devote oneself to such a task seems to decrease.

Table 4.8. Families by type of family¹⁾

Families, total	Couples without/with unmarried children		Mother with un- married children	Father with un- married children	Single persons	Persons per family
	Without unmarried children	With un- married children				
Number						
1/11 1960 ²⁾ .	1 414 349	228 902	592 838	57 817	26 516	508 276 2,54
1/11 1970 ²⁾ .	1 532 473 ³⁾	284 059	623 567	74 864	14 081	535 817 2,53
31/12 1974 ..	1 589 920	300 400	632 094	88 145	18 919	550 362 2,51
1/7 1977	1 629 317	304 997	633 036	97 425	18 636	575 223 2,48
1/7 1980	1 684 297	308 288	625 206	110 666	19 785	620 352 2,42
Per cent						
1/11 1960 ...	100,0	16,2	41,9	4,1	1,9	35,9 .
1/11 1970 ...	100,0	18,5	40,7	4,9	0,9	35,0 .
31/12 1974 ..	100,0	18,9	39,8	5,5	1,2	34,6 .
1/7 1977	100,0	18,7	38,9	6,0	1,1	35,3 .
1/7 1980	100,0	18,3	37,1	6,6	1,2	36,8 .

1) A family is defined as a family nucleus. Persons included in a family nucleus must be registered as resident in the same dwelling unit. The various types of family nucleus are:

1. Husband and wife without or with unmarried children
2. Mother with unmarried children
3. Father with unmarried children
4. Person registered without unmarried children, spouse or parents (single persons).

2) Figures from the population census. Families in institutional households and persons without a permanent residence are included in the figures in order to make the census figures comparable with the family statistics.

3) Including 85 families in institutional households with unknown type of family.

A family is defined as a family nucleus (see table 4.8). If, for example, one of the spouses has a mother/sister living in the same dwelling, she would count as a separate family nucleus. According to the 1970-census, 1 of 6 persons lived in a private household with 2 or more families. By the same census 1 of 4 persons lived in a private household with only 1 or 2 persons.

Table 4.9. Persons in private households, by number of families in the household, by size of household, and by size of family. Per cent. 1970

Number of families		Size of household		Size of family	
Total	100,0	Total	100,0	Total	100,0
1 family	84,2	1 person	7,2	1 person	12,6
2 families	13,3	2 persons	17,2	2 persons	17,9
3 families or over	2,5	3 "	19,1	3 "	19,1
		4 "	24,2	4 "	23,7
		5 "	17,3	5 "	15,6
		6 "	8,7	6 "	7,0
		7 persons or over	6,2	7 persons or over	4,1

5. MIGRATION

It is difficult to give a comparable measure of internal mobility, because it depends on the size of the smallest regional unit over which boundaries migration is registered. Taking this into consideration, it seems that in 1965 the internal mobility rose to a higher level than before, and this level was kept for ten years (table 5.1). Since 1975 the internal mobility has been decreasing again. Also mobility to and from abroad rose in 1965, mostly due to a rising immigration. Since then the mobility has been fairly constant. This trend concerns migration over municipality borders. Within large cities, especially Oslo, mobility within the municipality may also be high. For Oslo, internal migration is of the same size as migrations over the city border. The total mobility is about 18 per cent.

Table 5.1. Internal and external mobility

Year ¹⁾	Emigration and immigration		Internal migration ²⁾		Migration between counties ³⁾		Number of municipalities
	Total	Per 1 000 pop.	Total	Per 1 000 pop.	Total	Per 1 000 pop.	
1961-1965	24 707	6,7	170 348	46,5	80 718	22,0	623
1966-1970	29 627	8,0	191 635	50,2	97 308	25,5	453
1971-1975	32 697	8,2	190 886	48,2	100 768	25,5	445
1976	33 021	8,2	178 478	44,3	94 032	23,4	445
1977	33 772	8,4	181 783	45,0	95 899	23,7	454
1978	33 676	8,3	176 830	43,6	92 460	22,8	454
1979	32 916	8,1	172 803	42,4	90 473	22,2	454
1980	33 481	8,2	181 394	44,4	93 249	22,8	454

1) Annual average for 5-year period. 2) Migration between municipalities.

3) Oslo and Akershus are considered as one county.

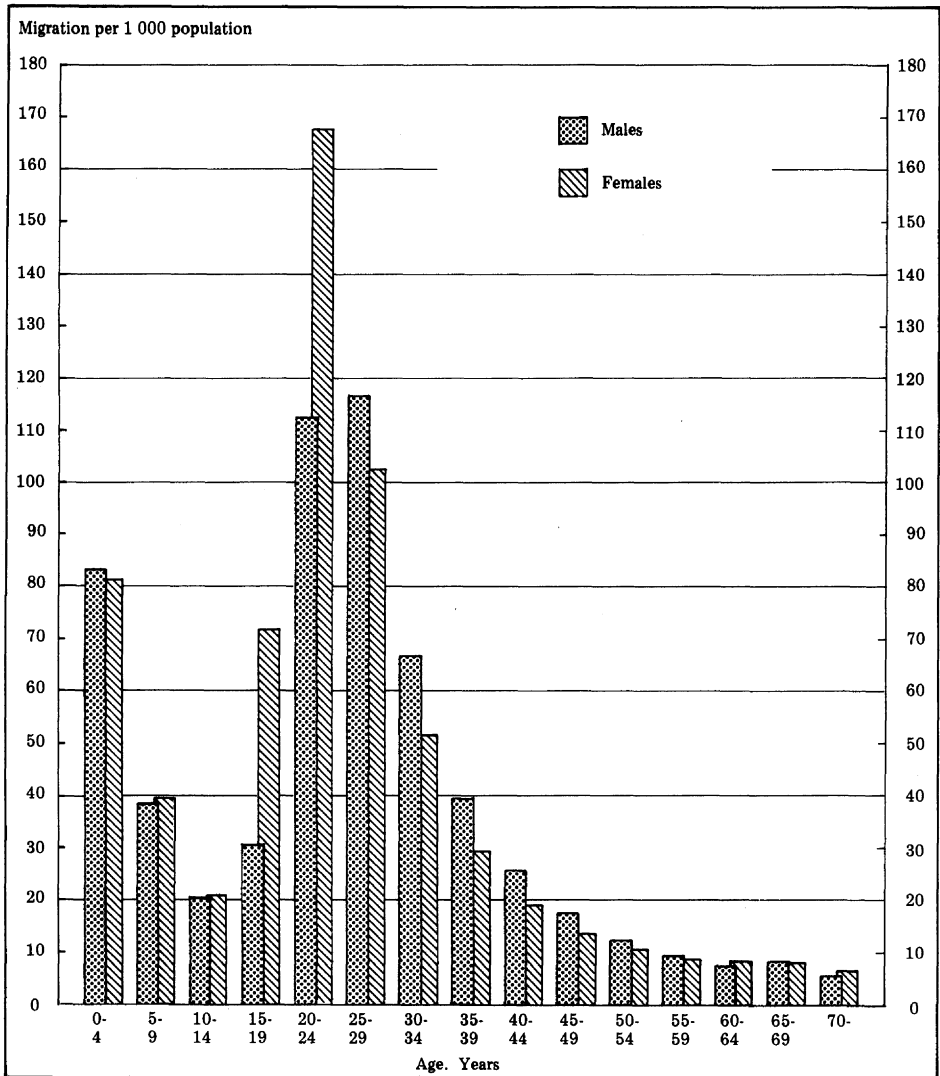
High mobility may be beneficial for the labour market and give better opportunities for some individuals. However, it also may create social problems like depopulation of peripheral areas¹⁾, dissolution of social networks, making people rootless and creating losers. Figure 5.1 shows that women 20 - 24 years old have the highest mobility. Women also have a higher total mobility than men, and their period of high mobility starts earlier than for men. The typical young mover (20 years) moves single to larger centres, while older movers (30 years) to a larger degree move with their family out of the large centres.

Although the gross migration stream seems rather big, the net migration is small (table 5.2). It is therefore small changes in the population size and age structure between the counties from year to year. This is also the case in Northern Norway (being a traditional out-migration area) due to the high fertility rates. On a more local level than county the consequences can be more dramatic. For instance small peripheral municipalities may be more or less depopulated, and only a rather old population is left. This phenomenon also occurs in parts of municipalities, for instance in the central part of Oslo. This migration can be seen as a reaction on bad living conditions. According to the Level of Living Survey 1976 central parts of the big cities and the most peripheral areas of the country had the lowest living standard.

Migration streams between counties also give an indication of the urbanization process that has taken place. By 1950 about half the population was living in densely populated areas. By 1970 the share was two thirds.

1) By peripheral areas is meant areas distant from larger centres.

Figure 5.1. Mobility¹⁾ for males and females in different groups. Per 1 000. 1976-1980



1) Mobility is the number of internal migrations as per 1 000 of the mean population within each age group.

A change in location of job opportunities is a main reason for this development. It is argued that the concentration process at first was national (people moving to the Oslo area), then regional, and at last local (people moving to the municipal centre).

Table 5.2. Net migration. County

County	Annual average			1976	1977	1978	1979	1980
	1961 - 1965	1966 - 1970	1971 - 1975					
The whole country	-411	853	4 835	4 889	5 034	3 974	2 746	4 071
Østfold	239	924	590	534	824	837	606	742
Akershus	4 958	6 561	3 037	641	1 383	1 446	283	829
Oslo	255	-2 640	-3 500	-59	-1 444	-2 184	-2 081	-2 052
Hedmark	-914	-161	587	980	1 255	1 039	831	931
Oppland	-693	-116	564	282	491	944	501	432
Buskerud	603	638	1 340	1 356	680	615	768	1 012
Vestfold	162	835	748	672	859	722	543	684
Telemark	221	-426	16	1 107	912	253	51	389
Aust-Agder	-95	239	737	529	697	636	781	795
Vest-Agder	353	681	581	499	837	-7	175	391
Rogaland	-123	415	1 320	1 423	1 864	2 095	996	1 037
Hordaland	-131	-127	-413	-662	-672	-1 300	-1 205	-655
Sogn og Fjordane	-605	-541	-16	279	15	277	266	269
Møre og Romsdal	-1 182	-798	9	-94	-226	13	-246	-485
Sør-Trøndelag ..	127	440	-157	92	-811	-369	600	326
Nord-Trøndelag .	-1 020	-788	307	71	309	286	208	241
Nordland	-1 359	-2 787	-939	-1 420	-971	-358	23	-105
Troms	-669	-623	290	-669	-295	-161	94	22
Finmark	-538	-873	-266	-672	-673	-810	-448	-732

Norway did not experience net immigration of significance until 1970. Since then the net immigration has been about 4 000 per year (table 5.3). Norway's greatest migration exchange concerned Denmark, Sweden, Great Britain and United States (70 per cent of the migration exchange 1961 - 1965 and 50 per cent in 1980). The greatest net gain 1971 - 1975 was from the United States, Pakistan (695), Great Britain and Denmark. Many Pakistanies and coloured emigrants settled in the Oslo area, while many Americans settled in Rogaland due to the increase in oil activity. The net immigration from United States and Pakistan has decreased

during the last five years. The largest net gain now consists of Europeans and refugees from Vietnam.

Table 5.3. Immigration and emigration

Year ¹⁾	Total	Den- mark	Sweden	Great Bri- tain	Rest of Europe	United States	Rest of Ame- rica	Africa	Asia	Oce- ania	Un- known
<u>Immigration</u>											
1961-1965	12 148	2 742	1 935	1 048	2 639	2 617	472	301	264	108	22
1966-1970	15 239	2 380	2 813	1 418	3 815	2 867	579	544	579	187	57
1971-1975	18 766	2 822	2 544	1 886	4 181	3 189	759	1 123	1 921	315	26
1976	18 955	2 196	2 129	2 240	4 844	2 754	819	1 073	2 577	300	23
1977	19 403	2 315	2 459	2 621	4 774	2 696	878	1 318	2 072	245	25
1978	18 825	2 180	2 371	2 445	4 657	2 517	896	1 160	2 371	210	18
1979	17 831	1 926	2 092	2 054	4 428	2 187	732	1 199	3 045	152	16
1980	18 776	2 387	2 231	2 309	4 207	2 288	795	1 184	3 166	186	23
<u>Emigration</u>											
1961-1965	12 559	3 005	2 872	1 012	2 302	2 325	350	280	229	129	55
1966-1970	14 389	2 474	2 922	1 329	3 268	2 291	598	617	383	300	204
1971-1975	13 931	2 485	2 335	1 482	3 419	1 828	531	825	726	245	55
1976	14 066	2 269	2 591	1 640	2 944	2 035	531	805	1 029	176	46
1977	14 369	1 986	2 133	1 782	3 351	2 350	466	907	1 175	163	56
1978	14 851	2 103	1 799	2 106	3 453	2 447	523	914	1 255	175	76
1979	15 085	2 196	2 149	1 792	3 489	2 383	569	783	1 426	168	130
1980	14 705	1 858	1 935	1 996	3 256	2 446	581	918	1 371	221	123
<u>Net migration</u>											
1961-1965	-411	-263	-937	36	337	292	122	21	35	-21	-33
1966-1970	853	-94	-109	89	547	576	-19	-73	196	-113	-147
1971-1975	4 835	337	209	404	762	1 361	228	298	1 195	70	-29
1976	4 889	-73	-462	600	1 900	719	288	268	1 548	124	-23
1977	5 034	329	326	839	1 423	346	412	411	897	82	-31
1978	3 974	77	572	339	1 204	70	373	246	1 116	35	-58
1979	2 746	-270	-57	262	939	-196	163	416	1 619	-16	-114
1980	4 071	529	296	313	951	-158	214	266	1 795	-35	-100

1) Annual average for 5-year period.

6. POPULATION STRUCTURE

Demographic factors like mortality, fertility, migration and family formation affect the population structure. Changes in the population structure have consequences for policies regarding the labour market, building of schools, hospitals and old-age homes etc. The development of demographic factors are interesting because it gives signals of future changes in the population structure. However, there are changes in the population structure that are not purely demographic. In addition it is the degree of change and the change itself that have implications for the society. A special analysis of the change in population structure will therefore give useful information.

Table 6.1. Population by age and females per 1 000 males

Age. Years	Population 31 December			Females per 1 000 males		
	1960 ¹⁾	1970	1980	1960 ¹⁾	1970	1980
All ages	3 591 234	3 888 305	4 092 340	1 007	1 011	1 018
0 - 4	308 225	329 149	258 515	953	946	950
5 - 9	302 774	313 535	307 817	949	946	958
10 - 14	317 154	307 528	332 554	947	955	948
15 - 19	264 198	302 437	316 395	952	952	948
20 - 24	209 567	313 534	309 259	957	937	957
25 - 29	198 468	260 710	304 445	967	941	949
30 - 34	223 386	206 683	315 951	964	967	935
35 - 39	256 403	195 938	261 631	979	975	945
40 - 44	257 374	219 587	206 247	998	974	972
45 - 49	243 607	249 880	193 289	994	990	987
50 - 54	225 078	249 136	212 939	1 025	1 018	997
55 - 59	203 873	230 773	236 858	1 074	1 034	1 031
60 - 64	181 696	206 093	228 607	1 109	1 092	1 090
65 - 69	145 725	176 613	200 589	1 128	1 189	1 149
70 - 74	108 472	142 431	164 654	1 213	1 286	1 280
75 - 79	74 052	97 555	120 921	1 289	1 350	1 501
80 - ...	71 182	86 723	121 669	1 353	1 542	1 760

1) 1 November 1960.

From 1960 to 1980 the population growth in Norway was 500 000 or about 14 per cent. Decreasing fertility and reduced mortality among females have resulted in an older population and a greater excess of females

over males, especially in the older ages (tables 6.1 and 6.2). In the age group 70 years and over, the increase has been nearly 154 000 persons or 60 per cent in 20 years (table 6.3). The government calculates the need of beds in nursing homes and old-age homes to be a fixed per cent of the number of persons 70 years and over (Grund 1978). The estimated need has increased with 60 per cent the latest 20 years and will continue to increase. However, more close studies indicate that nursing homes are mostly occupied by persons 80 years and over. The growth in this group has been even more heavy (70 per cent the last 20 years), and the increase in need for new beds should therefore be more than 60 per cent.

Table 6.2. Population by sex and age. Per cent

Age. Years	Both sexes			Males			Females		
	1960	1970	1980	1960	1970	1980	1960	1970	1980
All ages .	100	100	100	100	100	100	100	100	100
0 - 9 ..	17,0	16,5	13,8	17,5	17,1	14,3	16,5	16,0	13,4
10 - 19 ..	16,2	15,7	15,9	16,7	16,1	16,4	15,7	15,2	15,3
20 - 29 ..	11,4	14,8	15,0	11,6	15,3	15,5	11,1	14,2	14,5
30 - 39 ..	13,4	10,4	14,1	13,6	10,6	14,7	13,1	10,1	13,5
40 - 49 ..	14,0	12,1	9,8	14,0	12,2	10,0	13,9	11,9	9,6
50 - 59 ..	11,9	12,3	11,0	11,7	12,3	11,0	12,2	12,4	11,0
60 - 69 ..	9,1	9,8	10,5	8,6	9,3	10,0	9,6	10,4	11,0
70 - 79 ..	5,1	6,2	7,0	4,5	5,4	5,9	5,6	7,0	8,0
80 -	2,0	2,2	3,0	1,7	1,8	2,2	2,3	2,7	3,8

Table 6.3. Population change by sex and age. Relative figures

Age, Years	Both sexes			Males			Females		
	1970 ¹⁾	1980 ¹⁾	1980 ²⁾	1970 ¹⁾	1980 ¹⁾	1980 ²⁾	1970 ¹⁾	1980 ¹⁾	1980 ²⁾
All ages	108	114	105	108	113	104	108	115	106
0 - 9	105	93	88	105	93	88	105	93	89
10 - 19	105	112	106	105	112	107	105	112	106
20 - 29	141	150	107	142	151	106	139	150	108
30 - 39	84	120	143	84	122	146	84	118	141
40 - 49	94	80	85	94	80	85	93	79	85
50 - 59	112	105	94	113	107	94	111	103	93
60 - 69	117	131	112	116	131	113	118	131	111
70 - 79	131	156	119	128	148	116	135	163	121
80 - ..	122	171	140	113	146	129	129	190	147

1) Population 1960 = 100. 2) Population 1970 = 100.

The number of children 0 - 14 years has been reduced by 29 000 (2.5 per cent) from 1960 to 1980 in spite of an increasing number of potential mothers. Compared with a total population growth of 14 per cent the need of kindergartens and elementary schools have therefore decreased, other things being equal.

The age group 15 - 19 years has increased by 50 000 persons since 1960. In 1960 a large part of this age group was at work, while most of the corresponding age group in 1980 still was within the educational system.

The number of persons in the ages of employment activity has grown at the same rate as the total population. The employment participation rates will then describe the development in the number of working persons supporting the non-working part of the population. The sources of employment participation rates are the 1960- and 1970-census and Labour Force Surveys.

Table 6.4. Employment¹⁾ participation rates among males and females by age

		All ages ²⁾	Age. Years					
			16-19 ³⁾	20-24	25-29	30-49	50-59	60-64 ⁴⁾
MALES								
	1960 ..	83	54	82	94	98	96	88
Total	1970 ..	75	36	78	90	96	90	76
	1972 ..	78	44	62	90	95	90	79
	1980 ..	79	47	66	89	97	96	73
FEMALES								
	1960 ⁵⁾	24	43	48	26	20	26	23
Total	1970 ..	28	30	48	35	30	34	24
	1972 ..	45	39	52	47	54	50	38
	1980 ..	55	43	65	63	68	75	39
Unmarried	1960 ..	56	44	77	80	75	71	59
	1970 ..	46	30	63	79	76	68	51
	1972 ..	54	39	62	74	77	65	61
	1980 ..	56	43	68	81	76	82	61
Married	1960 ⁵⁾	10	16	18	13	10	10	5
	1970 ..	23	30	32	26	25	27	15
	1972 ..	43	:	39	40	52	48	33
	1980 ..	58	41	60	58	67	74	38
Previously married	1960 ..	28	48	59	63	66	58	38
	1970 ..	20	19	43	52	55	45	24
	1972 ..	38	:	:	:	66	55	40
	1980 ..	40	(0)	40	65	78	81	33

1) 1960 and 1970: Persons with own work as main source of livelihood. 1972 and 1980: Persons in the labour force, that is persons with at least one hour paid work in the survey week, persons temporarily absent from work and non-employed persons seeking work. 2) 1960: Persons 15 years and over. 1970: Persons 16 years and over. 1972 and 1980: Persons 16 - 74 years. 3) 1960: 15 - 19 years. 4) 1970 and 1980: 60 - 66 years. 5) Married family workers are not included.

Source: 1960 and 1970: Population censuses, 1972 and 1980: Labour Force Surveys

Because of different definitions, the censuses will be used to describe the development in the 1960s, while the Labour Force Surveys describe the 1970s. Since employment participation rates differ by marital status, we may emphasize that the share of married people 30 - 59 years was nearly the same in 1960 and 1980. For males there was a tendency of decreased employment activity in the 1960s, while the rates were fairly stable in the 1970s.

For females there has been a steady increase in the employment activity. This is due to rising employment rates for married women. The rates for unmarried women have been constant if we disregard the changes due to increased education in the ages 16 - 24 years.

Males have higher employment rates than women. Married males have higher employment rates than unmarried males, while married females have lower employment rates than unmarried females. This traditional pattern of employment seems to have changed by 1980 with equal total employment rates for married and unmarried women. However, the reason for this is the difference in age structure of the married and unmarried population. The rates for each age group show that unmarried women still have higher employment activity than married women. Besides, married women are more likely to have part-time jobs. Thus, married women will be a potential resource, as the need for personnel in health and social sectors increases.

Trends in occupation structure show a decreasing share of persons involved in production of commodities, while the share doing service work or technical and humanistic work is increasing. At the same time, the educational level in the labour force has been increasing.

In periods with hard economic competition and rapid changes in the economy, increased education is an advantage, but such conditions may also create losers. Until now the number of unemployed has been small in Norway. However, the number of disability pensioners now amounts to about 6 per cent of the population 16 - 66 years. For persons 50 - 59 years the corresponding percentage exceeds 10, and for persons 60 - 66 years it exceeds 20. The degree of disability is decided after an evaluation of a person's health and his job opportunities. Lacking job opportunities are probably one main reason why Northern Norway has about 30 per cent higher rates of disability pensioners than the average rate (Rikstrygdeverket 1981).

Disability rates are also high in municipalities with a weak population development and a low education level, and in peripheral municipalities with basic industries. However, in the latest years the increase has been greatest in central manufacturing municipalities (NOU 1976:28).

Vulnerable groups are also immigrants with different cultural backgrounds. This concerns in particular immigrants from Asia, Africa and to a certain degree from Southern Europe. Only 2 per cent of the inhabitants of Norway are foreign citizens, and only about 30 per cent of them have come from the above mentioned areas. They have had, however, a tendency to concentrate in Oslo, where 5 per cent of the population are foreigners. About one half of the immigrants from Asia and Southern Europe and two thirds of the immigrants from Africa are settled in Oslo, where one of the main problems is the housing problem.

7. POPULATION PROJECTIONS 1979 - 2000

7.1. The population projection model

The population projection model used by The Central Bureau of Statistics includes only demographic variables. For the period 1979 - 2000 mortality rates are assumed to remain as in 1976 - 1977, with some slight decrease. For fertility, two sets of assumptions are made for age-specific fertility rates. In the first alternative, alternative H (H = high), it is assumed a 5 per cent increase in relation to 1978 in all fertility rates over a 5-year period, while a 5 per cent decrease is assumed in the low alternative. Thus, in the first year with fixed fertility the net reproduction rate is 0.89 in alternative H and 0.80 in alternative L. Internal migration is assumed to remain at the same level as observed for 1975 - 1978. The number of net immigrants per year is assumed to be 4 000. The projections also include regional results.

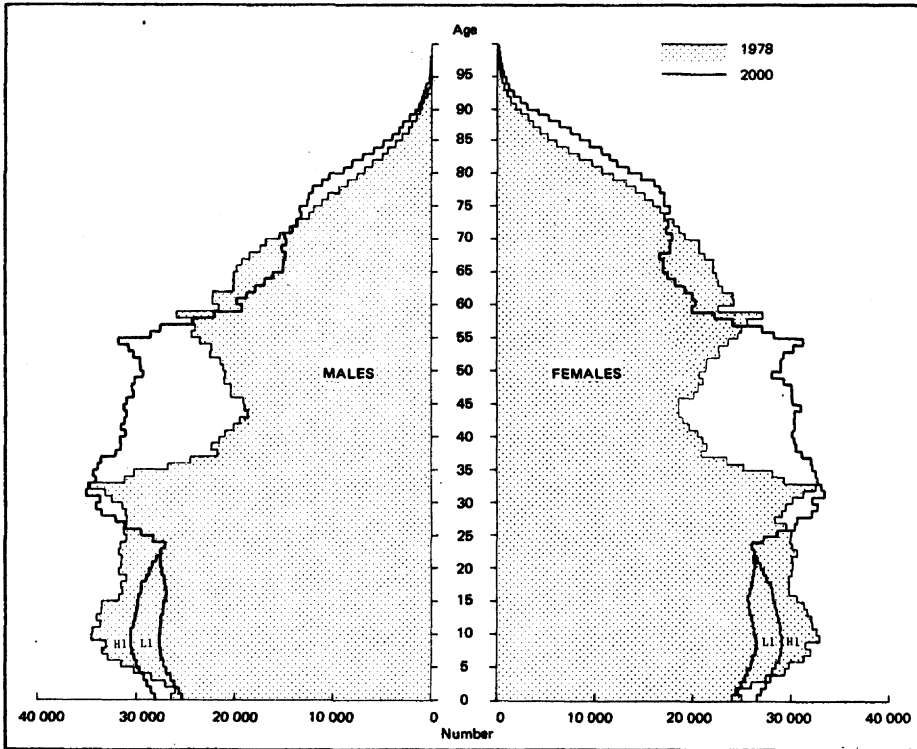
Table 7.1. Population by age. 1980 - 2000¹⁾

Age. Years	Year				
	1980	1985	1990	1995	2000
L1-79 ²⁾ Total .	4 095 710	4 153 374	4 200 932	4 241 472	4 265 379
0 - 9	568 565	520 868	522 849	531 458	524 535
10 - 19	648 719	643 561	577 567	531 464	533 480
20 - 29	614 096	628 030	652 638	647 542	584 746
30 - 39	577 701	620 915	617 728	631 327	654 344
40 - 49	400 022	464 325	568 237	609 612	606 589
50 - 59	449 800	396 128	385 020	446 414	544 258
60 - 69	429 717	435 564	402 513	354 979	346 010
70 - 79	285 644	306 044	322 964	326 380	299 606
80 - ..	121 446	137 939	151 416	162 296	171 811
0 - 19	1 217 284	1 164 429	1 100 416	1 062 922	1 058 015
20 - 59	2 041 619	2 109 338	2 223 623	2 334 595	2 389 937
60 - ..	836 807	879 547	876 893	843 955	817 427
H1-79 ³⁾ 0 - 9	570 635	544 407	571 087	585 737	578 918
10 - 19	648 722	643 608	579 699	554 496	580 588

1) According to projection 1979. 2) Net fertility rate 0.80 from 1984 (the first year with constant fertility). 3) Net fertility rate 0.89 from 1983 (the first year with constant fertility).

Both alternatives show a declining growth rate in the total population. By 1990 the growth rate is 0.35 per cent for alternative H, and 0.22 per cent for alternative L. According to alternative L the population will reach a maximum soon after 2000. In the future population the outstanding feature will be a decreasing share of children and adolescents, and an increase of elderly, that seems to continue.

Figure 7.1. Population by the end of the year, by sex and age. Registered 1978 and projected 2000. (Alternative H1 and L1.)



7.2. Children and adolescents (0 - 19 years)

The most difficult age group to predict consists of cohorts not born, since fertility is a very variable factor. By the end of the century the group under 20 years will consist totally of persons born after the projections were made.

The proportion in age 0 - 19 years will decrease according to both the L and H alternative. From a share of 29.7 per cent in 1980, the percentages for 2000 are projected to 24.8 per cent (alternative L) and 26.6 per cent (alternative H). Although alternative H only gives 10 per cent more persons 0 - 19 years in 2000 than alternative L does, the difference will be 100 000 (a decrease of 60 000 compared to 159 000).

However, according to alternative L, the number of births each year in the period 1980 - 2000 will remain at the same level as the last 4 years. The great reduction in the number of births occurred in the period 1972 - 1977 with a reduction from 64 260 in 1972 to 50 877 in 1977. It is when children born during this period reach the school age that the need of schools will be reduced.

In a historical context, these projections are based on low reproduction rates. Before 1975 the net reproduction rates were over 1.0. The reduction in marriage rates and fertility rates in the 1970s may be a short-term fluctuation that could be altered by an active family policy.

Table 7.2. Population by age. Per cent. 1980-2000¹⁾

Year	Total	Age. Years									
		0-6	7-19	20-66	67-	0-19	20-59	60-	70-	80-	
1980	100	9,2	20,5	57,5	12,8	29,7	49,9	20,4	9,9	3,0	
1990	100	8,7	17,4	59,6	14,3	26,1	53,0	20,9	11,3	3,6	
2000	100	8,5	16,3	61,8	13,4	24,8	56,0	19,2	11,1	4,0	

1) According to projection 1979, alternative L1-79.

Table 7.3. Projected population change by age. Relative figures

Year	Total	Age. Years							
		0-6	7-19	20-66	67-	0-19	20-59	60-	80-
1980-1990 ¹⁾	102,6	97	87	106	114	90	109	105	125
1980-2000 ¹⁾	104,1	96	83	112	108	87	117	98	141
1990-2000 ²⁾	101,5	99	95	106	95	96	107	93	113

1) Alternative L1-79, 1980=100. 2) Alternative L1-79, 1990=100.

7.3. The working population (20 - 59 years)

From 1960 to 1980 the population in the working ages kept their share of the total population (table 6.2). The large cohorts born after the second world war entered the working ages, while cohorts of the same size from the beginning of the century retired. Towards the year 2000 the cohorts leaving the working ages will be small. At the same time the cohorts entering the working ages will be somewhat larger. As a result of this difference the age group 20 - 59 years will increase its share of the total population from 50 to 56 per cent. In addition, the largest 10-year age groups in 1980 were 10 - 19 years and 20 - 29 years (table 6.1). By 2000 these persons will be in the ages of highest employment activity (30 - 49 years). In a 20-year perspective the population basis for the labour force will therefore increase. A decrease will not occur until the large cohorts born after the last war retire.

A crude estimate based on fixed employment participation rates shows that the labour force will increase from 1.96 millions in 1980 to 2.12 millions in 1990 and 2.22 millions in 2000. The increase is 8 per cent in the 1980s and 5 per cent in the 1990s, while the increase in the total population is 2.6 and 1.5 per cent, respectively (table 7.3).

A larger labour force does not automatically lead to more man-hours worked. The employment participation rates may decrease due to economical fluctuations, increase in number of persons competing for jobs and continued growth in the number of disability pensioners. Even if the increase in employment activity among women should continue, more part-time work and shorter working days may counterbalance the increase in the labour force. This was the case in the 1970s. The average number of man-hours worked per week decreased by 3 hours in a 7-year period to 36.4 hours per week in 1979. Thus, in spite of a growth in the labour force, the total number of man-hours worked did not increase.

A change in the distribution by marital status due to low marriage rates and high divorce rates, may give a larger number of single persons. Since

single women have higher employment participation than married women, the result could be more hours worked.

However, more single persons may indicate a decreasing number of persons taking care of the sick and elderly relatives in their homes. There will then be a need for extra nursing personnel inside and outside institutions.

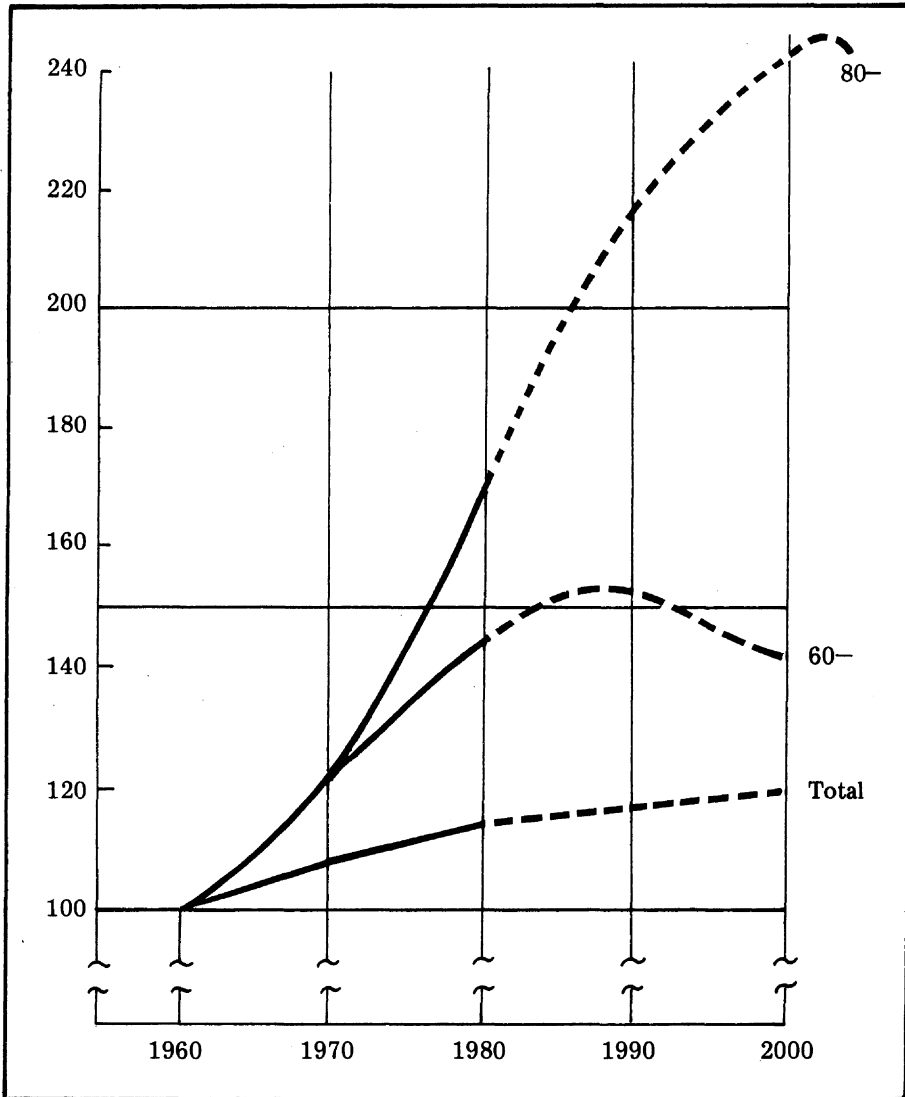
The comments given in this chapter have assumed a fixed retirement age of 67 years. It is, however, most likely that it will be changed during the projection period, and thus affect both the number of old-age pensioners and the number of working people.

7.4. Elderly (60 years and over)

Chapter 6 showed that the number of persons 70 years and over increased by 60 per cent from 1960 to 1980. According to the population projections the increase will be 16 per cent from 1980 to 2000. The number of persons 60 years and over will decrease by 2 per cent, compared to an increase of 44 per cent from 1960 to 1980. However, for the age group 80 years and over there has been a considerable growth (71 per cent 1960 - 1980), and the projected growth to year 2000 is 41 per cent. The age group 60 years and over will reach a maximum of 21.2 per cent of the total population in 1986, while the age group 80 years and over will reach a maximum of 4.1 per cent soon after 2000.

In a long-term view the decreasing mortality plays an important role for the ageing of the population. Better standard of living and a better health system have contributed to this development. The ageing population in return creates a greater need for nursing homes and old people's homes.

Figure 7.2. Population growth 1960-2000 (1960 = 100). Total, 60 years and over, 80 years and over



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