

LONG TERM IMPLICATIONS OF LOW FERTILITY IN KERALA

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ABSTRACT

In recent years, Kerala has made remarkable progress in its demographic transition. The State has achieved below replacement level of fertility two decades ahead of the all-India target year of 2011 and India is likely to achieve the replacement level only by 2021. The TFR declined from a high level of 5.6 in 1951-61 to about 1.7 in 1993, a level which is very much below the replacement level of 2.05. The State's IMR has touched a low level of 13 in 1993, a level comparable to that of some of the developed countries of the world. The population growth rate has declined to about 1 per cent per annum in 1995 from a high level of 2.3 per cent per year during 1961-71.

Thus Kerala's demographic trends in the first half of the 21st century will be dramatically different from that of the second half of the 20th century. Total population of the State is expected to increase by 170 percent in the second half of the present century (from 11,723,000 in 1951 to 31,553,000 in 2001), the growth (if any) in the next half a century will be very negligible. The crude death rate declined from about 20 to about 6 in the last half a century, but it is likely to increase from 6 to 13 in the next century. The crude birth rate decreased from 40 to about 16 in the last half a century, but it is likely to remain more or less stable in the next half a century. While Kerala experienced varying degrees of net out-migration and net emigration in the last half a century, migration trend in the next half a century is somewhat uncertain. It will depend more on socio-economic developments than on demographic trends.

The socioeconomic implications of the reversal of the demographic trends will be far reaching: (a) To begin with, the pressure on schools and colleges will be a thing of the past, giving ample opportunities for the educational system to concentrate on the quality of education rather than on quantity. (b) This is also true of hospitals and health personnel catering to the health needs of the children. It will be easier to bring about the needed improvement in the quality of their services. (c) In the transitional period, parity between the number of girls and boys in their respective marriage ages will be maintained. But this is a temporary respite. (d) Other things being equal on the economic front, unemployment among the young working age population will be greatly reduced. The educated young workers might be able to pick and choose the job they want. But this is not the case with older workers. The number of older working population would almost double in a short period of 20 years between 2001 and 2021 (e) In the last half a century the major socioeconomic problems were related to the schooling, maintenance of health and nutrition and finding employment for the youngsters. In the next half a century, the major socio-economic problems would be finding gainful employment for the older working age population, maintenance of the health and nutrition of the elderly, and providing them with means of subsistence through social security and pension, etc.

JEL Classification : J10, J11, J13, J14

Key words: Kerala, fertility, mortality, migration, projections, aging, labour force, social security, pension, marriage.

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Introduction

In recent years, Kerala has made remarkable progress in its demographic transition. The State has achieved below replacement level of fertility two decades ahead of the all-India target year of 2011. The TFR (Total fertility rate denotes the average number of children that would be born to a woman during her life time, if she passes through her child bearing years confirming the age specific fertility rates of the year) declined from a high level of 5.6 in 1951-61 to about 1.7 in 1993, a level which is very much below the replacement level of 2.05. The State's IMR (Infant mortality rate is defined as death below one year to per

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We have benefitted from the comments of the participants including Professor Pravin Visaria (Director, Institute of Economic Growth), Professor K B Pathak (Director, International Institute for Population Sciences, Bombay), Professor K Srinivasan (Executive Director, Population Foundation of India, New Delhi) and Professor I S Gulati (Vice Chairman, Kerala State Planning Board). Comments from the referee of the CDS working paper series are greatly acknowledged.

thousand livebirths) has touched a low level of 13 in 1993, a level comparable to that of some of the developed countries of the world. The population growth rate has declined to about 1 per cent per annum in 1995 from a high level of 2.3 per cent per year during 1961-71.

A number of factors and policies have contributed to these remarkable achievements in Kerala's demographic transition. The high population density is one such factor. So is the peculiar settlement pattern of population in the State. But a very much larger role was played by the State's policies and programmes in bringing about the rapid transition in fertility and mortality rates: policies in the areas of education, especially female education, health care, especially child health and universal immunization program, family planning program, land reforms, etc. (Nair, 1974; Krishnan, 1976; Zachariah, 1984; Nair 1986; Mari Bhat and Irudaya Rajan, 1990; Kumar, 1993; Zachariah et.al, 1994; Zachariah and Irudaya Rajan 1997).

Achievements in the demographic front, however, have not yet brought any real solution to the economic problems in the State. Unemployment, especially among the educated, is still a very serious problem. Data on unemployment are not very reliable. According to the 1987-88 National Sample Survey, more than 10 per cent of the unemployed in India are in Kerala though Kerala accounts for only 3.4 per cent of the country's population. Educated unemployment in Kerala has assumed alarming proportions. Its rate increased from 29.3 to 35.0 per cent and the number of educated unemployed from 3.5 to 6.3 lakhs during 1983 to 1987-88. It is, however, important to note that unemployment is not evenly distributed among all age groups. On the contrary, it is concentrated in the age group 15-29. (Mathew, 1996).

A very glaring manifestation of the unemployment problem in the state is the large number of migrants. Firm figures are not available, but

according to our own estimate, there were about 618,000 emigrants from Kerala in 1991. (**Zachariah et.al, 1994**). The rate of net migration from Kerala stood at -0.16 during 1961-71, -0.22 during 1971-81 and -0.31 during 1981-91 (**Mari Bhat and Irudaya Rajan, 1990; Zachariah and Irudaya Rajan, 1997**).

Thus, the State's success in moderating fertility, mortality and population growth has not yet succeeded in solving the pressing economic problems in the state. It is perhaps a little too early to expect major changes. In the coming years the demographic changes will have their repercussions on the social and economic conditions in the State. If TFR remains below replacement level, the rate of population growth is bound to become negative and the population of the State will ultimately start declining. If fertility and mortality rates remain at the current levels, the age distribution of the State's population will undergo dramatic changes with far reaching consequences in the social and economic sectors. Not even a single study exists in the State of Kerala for the policy makers to prepare the future planning based on the demographic change. Above facts in mind, the objective of this paper is to examine some of these implications: the social and economic consequences of a below replacement level of fertility rate, a declining mortality trend at very low levels and a moderate rate of emigration from the State.

An essential tool for such an analysis is a set of population projections using probable trends in fertility, mortality, and migration. This paper includes three set of projections. The assumptions on future fertility and mortality trends and future migration trends are based on data on recent trends in fertility, mortality and migration, our understandings on the determinants of demographic transition in the State, and international experience in fertility transition in many developed countries. As studies on these determinants are plenty in literature, we

are not attempting a review here (see **Zachariah and Irudaya Rajan, 1997**). However, as a prelude, we shall review the mortality and fertility transition in some detail.

Mortality Transition

Kerala's health conditions are the best among the various states in India, a conclusion well supported by a variety of data sources. Tables 1 and 2 give the mortality data for Kerala from the census and the Sample Registration System. Kerala consistently had lower levels of mortality than that of India as a whole even for the period 1951-61. The Crude death rate declined from 19.7 to 8.6 per thousand between 1951 and 1981. It declined further to about 6 in the first half of the 1990s.

Infant mortality rate is considered as an index which measures the quality of life in any given population. Of all changes in the demographic sphere that have occurred in Kerala, the decline in the infant mortality rates is the most remarkable. In reviewing the IMR trends, it is found that the infant mortality rate which stood at 242 per thousand live births (1911-20) has been reduced to 66 in 1961-70. The SRS data on IMR from 1971 onwards also indicate a continuation of the declining trend.

Table 1: Estimates of Mortality, Kerala, 1951-81

Decade	Crude Death Rate	Life Expectancy at birth		Life Expectancy at age five	
		Male	Female	Male	Female
1951-61	19.7	44.3	45.3	50.9	49.6
1961-71	12.2	54.1	57.4	58.1	57.7
1971-81	8.6	60.6	62.6	59.6	61.5

Source: P N Mari Bhat [1987]; P N Mari Bhat and S Irudaya Rajan (1990)

Table 2: Mortality Indicators, Kerala, 1971-1993

Year	Crude Death Rate	Neonatal Mortality	Post Neonatal Mortality	Infant Mortality
1971	9.0	21	37	58
1972	9.2	26	37	63
1973	8.5	27	31	58
1974	7.8	23	32	54
1975	8.4	20	34	54
1976	8.1	22	34	56
1977	7.3	19	28	47
1978	7.0	15	27	42
1979	6.9	13	30	43
1980	7.0	11	30	40
1981	6.6	12	26	37
1982	6.6	9	22	30
1983	6.7	10	23	33
1984	6.4	8	21	29
1985	6.5	9	22	31
1986	6.1	8	19	27
1987	6.1	9	19	28
1988	6.1	10	18	28
1989	6.4	14	7	21
1990	5.9	12	5	17
1993	5.9	10	3	13

Source: K C Zachariah and S Irudaya Rajan et.al, 1997.

Table 2 a. Infant and child Mortality among the Districts of Kerala Based on 1991 Census *

Districts	Infant Mortality Rate			Child Mortality Rate			
	Total	Male	Female	Total	Male	Female	
Kerala	Total	37	36	38	46	44	47
	Rural	38	38	39	48	46	49
	Urban	30	29	34	39	37	42
Kasaragod	Total	39	32	42	49	50	48
	Rural	36	36	37	53	53	51
	Urban	28	32	24	31	32	30
Kannur	Total	31	36	27	46	53	39
	Rural	35	38	27	44	40	47
	Urban	28	30	26	35	37	32
Wayanad	Total	36	41	28	58	59	58
	Rural	37	41	28	58	59	58
	Urban	23	24	22	52	80	29
Kozhikode	Total	43	45	41	50	49	53
	Rural	52	56	48	57	52	62
	Urban	29	29	28	39	42	36
Malappuram	Total	36	41	28	57	57	58
	Rural	36	42	28	58	57	59
	Urban	30	29	30	52	48	56
Palakkad	Total	36	31	39	56	52	59
	Rural	36	30	39	54	52	57
	Urban	30	29	30	52	48	56

Thrissur	Total	38	32	44	39	37	43
	Rural	41	38	44	45	47	44
	Urban	30	27	30	35	29	41
Ernakulam	Total	39	27	52	42	37	47
	Rural	41	28	55	40	35	46
	Urban	37	27	50	43	38	48
Idukki	Total	43	47	39	56	55	57
	Rural	41	28	55	40	35	46
	Urban	22	19	21	26	43	11
Kottayam	Total	36	31	40	33	29	38
	Rural	37	32	39	34	30	39
	Urban	31	26	45	27	23	32
Alappuzha	Total	35	30	42	42	43	40
	Rural	32	29	35	40	46	34
	Urban	41	39	43	45	37	55
Pahanamthitta	Total	29	27	34	37	31	43
	Rural	28	27	30	36	29	43
	Urban	36	21	47	40	36	44
Kollam	Total	39	29	44	47	45	48
	Rural	37	29	40	43	44	42
	Urban	41	27	54	60	49	70
Thiruvananthapuram	Total	25	27	24	35	36	36
	Rural	26	28	25	40	39	41
	Urban	25	27	23	25	27	22

Estimated by S. Irudaya Rajan & P. Mohanachandran of Centre for Development Studies, Trivandrum. We have also made estimates for all the districts of India. Interested readers can kindly contact us.

By 1993, IMR in Kerala declined to 13 infant deaths per 1000 live births. Both the neo-natal and post neo-natal mortality have declined but the decline is impressive among the post neo-natal mortality. The district wise estimates of Infant child mortality are available in Table 2a.

Expectation of life at birth is another important indicator for assessing the overall health situation of any population. There has been a remarkable improvement in the expectation of life in Kerala among males and females. Interestingly, even at the turn of this century, expectation of life at birth was not very different for men and women. Between 1911 and 1960, the expectation of life had increased by 21 years for males and by 23 years for females. We also provide decennial estimates made by Bhat for the period 1951-81. These estimates show that the expectation of life at birth has been consistently higher among females in Kerala whereas it is not true for India a whole. In the period 1951-61, the expectation of life at birth was 44.3 years for males and 45.3 years for females. Thus it would appear that people in Kerala have all along been enjoying a better and healthier life than people in other parts of the country (**Irudaya Rajan, Mari Bhat and Tim Dyson, 1997**). The expectation of life at birth for females is higher than males, as in developed countries. In the period 1971-81, the expectation of life at birth was 60.6 years for males and 62.6 years for females. The percentage increase in the expectation of life at birth between 1951-61 and 1971-81 was 37 percent for males and 39 per cent for females. Among all the states of India, longevity is highest for Kerala, both for men and women. As of 1991-96, the expectation of life at birth for males is 70 years and 76 years for females. Interestingly, the difference between the rates in the life expectancy between males and females was 1 year during 1951-61, 2 years in 1971-81 and almost 6 years in the recent periods.

Fertility Transition

Reliable data on fertility trends of Kerala are available only for the period since the introduction of the Sample Registration System

(SRS). However, estimates made by several authors using the census data are available for different periods. The census based estimates shown here are taken from Mari Bhat (1987). These estimates are presented in Table 3. The annual series of fertility indicators derived from the Sample Registration System are provided in Table 4. A few conclusions are drawn from these figures.

Firstly, over the last 40 years or so, the fertility has been on a continuous decline. Crude Birth Rate (CBR) declined from 43.9 during 1951-61, to 28.1 during 1971-81. Total Fertility Rate (TFR) has declined from 5.6 children to 3.4 during the same period. According to the SRS, the CBR declined from 31.1 in 1971 to 25.6 in 1981 (5.5 points) and to 16.6 in 1993 (9.0 points). The TFR has also registered the similar decline through out the period under study. For instance, the TFR was 4.1 children per woman in 1971, 3.1 children in 1980 and 2.1 children in 1990. Kerala has achieved the replacement level of fertility at the beginning of 1990s. At this stage many demographers in India and abroad thought that further decline is unlikely. Against their predictions, Kerala's TFR declined further to 1.7 by the year 1993.

Birth rates by districts are also available from the Sample Registration System and other sources (Tables 5 and 6). Mari Bhat has estimated fertility rates of all districts of Kerala using 1981 and 1991

Table 3: Estimates of Fertility, Kerala, 1951-81

Decade	Crude Birth Rate	Total Fertility Rate
1951-61	43.9	5.6
1961-71	37.1	5.0
1971-81	28.1	3.4

Source: Same as Table 1.

Table 4: Fertility Indicators for Kerala, 1971-1993

Year	TFR	GRR	CBR
1971	4.1	2.0	31.1
1972	4.2	2.1	31.2
1973	3.9	1.9	29.2
1974	3.3	1.6	26.8
1975	3.4	1.6	28.0
1976	3.4	1.7	27.8
1977	3.1	1.5	25.8
1978	3.0	1.5	25.2
1979	3.1	1.5	25.8
1980	3.1	1.5	26.8
1981	2.8	1.4	25.6
1982	2.7	1.3	26.2
1983	2.6	1.2	24.9
1984	2.6	1.3	22.9
1985	2.4	1.2	23.3
1986	2.3	1.2	22.5
1987	2.3	1.1	21.7
1988	2.2	1.1	20.3
1989	2.1	1.0	19.8
1990	2.1	1.0	19.0
1991	2.0	0.9	18.0
1992	1.9	0.8	17.0
1993	1.7	0.8	16.6

Source: Same as Table 2.

censuses. (Mari Bhat, 1996). According to these estimates, the TFR varied from 1.6 in Ernakulam to 3.4 in Malappuram during 1984-90. In the beginning of 1990, only five districts (Palakkad, Malappuram, Wayanad, Kannur and Kasaragod) in Kerala have registered TFR above the replacement level. The remaining districts had already achieved below replacement level of fertility. One major conclusion from the District-wise analysis is that all the districts have contributed for the State-wise fertility decline. A Centre for Development Studies study has shown

Table 5: Crude Birth Rate by Districts

District	83-88	1983	1988	74-80	84-90
Thiruvananthapuram	21.5	20.8	20.5	22.8	19.6
Kollam	19.8	20.2	16.1	23.3	18.5
Alappuzha	17.7	18.1	14.8	21.0	16.7
Pathanamthitta	18.7*	n.a	17.3	n.a	17.2
Kottayam	18.5	18.1	16.8	20.1	16.6
Idukki	22.2	24.5	17.9	26.7	19.8
Ernakulam	17.9	21.0	15.8	21.4	16.9
Thrissur	19.1	17.9	18.7	22.2	18.7
Palakkad	21.9	22.0	18.9	22.5	18.8
Malappuram	33.5	33.8	28.4	33.6	29.5
Kozhikode	23.7	24.3	20.0	26.3	20.5
Wayanad	25.7	31.8	19.4	31.4	23.4
Kannur	26.5	31.4	25.2	28.8	20.5
Kasaragod	28.4*	n.a	26.8	n.a	24.4
Kerala	22.6	24.9	20.3	25.0	20.3

* Average from fewer years

§ First 3 columns based on SRS data; Last 2 columns from Mari Bhat, 1996. Sources: K C Zachariah et.al, 1994; P N Mari Bhat, 1996.

that the decline in TFR in Malappuram District was as sharp as in Ernakulam and Palakkad Districts (36 percent) between 1975-80 and 1986-91 (Zachariah et.al, 1994).

Table 6: Levels and Trends in Fertility in districts of Kerala

Total Fertility Rate			
District	1974-80	1984-90	% Decline
Thiruvananthapuram	2.3	1.8	21.7
Kollam	2.7	1.8	33.3
Alappuzha	2.3	1.6	30.4
Pathanamthitta	–	1.7	–
Kottayam	2.4	1.7	29.2
Idukki	2.9	1.8	37.9
Ernakulam	2.4	1.6	33.3
Thrissur	2.5	1.9	24.0
Palakkad	3.4	2.4	29.4
Malappuram	4.3	3.4	20.9
Kozhikode	3.0	2.0	33.3
Wayanad	3.8	2.3	39.5
Kannur	3.5	2.1	40.0
Kasaragod	–	2.5	–
Kerala	2.9	2.0	31.0

Source: P N Mari Bhat. 1996

Population Projections

Three sets of population projections are made by the authors using various assumptions about fertility and mortality trends. The starting point is the 1991 adjusted census age-sex distribution. All the three projections are made for the next 60-year period from 1991 to 2051.

Mortality assumptions are the same for the three sets. The expectation of life at birth of males is projected to increase from 73.43 years during 1991-96 to 77.15 during 2021-26 and 78.85 during 2046-51. The corresponding changes in the female expectation of life at birth are from 79.43, 83.15 and 84.85 (more details, see Table 10).

In 1993, Kerala's total fertility rate was 1.7. We have examined the implications of three alternate courses of fertility trend.

As a first alternative, we assumed that fertility will remain constant at a TFR of 1.7 for the entire projection period (Projection II). The second alternative is a continuation of the recent fertility decline. We assume that TFR will decline further to about 1.4 during the next 10 years and will remain at this low rate indefinitely (Projection I). In the third alternative, fertility will remain constant during 1991-2011, increase to 2.0 by 2031-36 and remain constant in the remaining period of projections (Projection III). The assumed TFRs are given in Table 9.

{In deciding on these fertility assumptions, we were governed mostly by the trend in fertility in Kerala in recent years, the social and economic progress the State has been making and the international experience in fertility decline. According to United Nations sources, there were nearly 40 countries with a TFR of less than 2.0 in 1990-95 including large countries like China, Russia, Australia, UK, Japan, Italy etc. Nearly 10 of them have a TFR of 1.5 or less. Among the countries of this latter group are Japan, Hong Kong, Italy, Spain, Germany, Greece, etc}

In all the three projections we have assumed that Kerala will continue to experience a moderate level of net out-migration. The assumed rate -0.25 which is less than the observed rate of -0.31 per cent

(more details see Table 8). A migration rate of -0.25 is kept constant throughout the projection period. Much of the discussion in paper is based on projection II. We have used the package 'PEOPLE' for the projections.

Table 7: Percentage Distribution of Population by Five-year Age Groups and Sex for Kerala, 1961, 1991 and 2021.

Age Group	Males			Females		
	1961	1991	2021	1961	1991	2021
0-4	15.29	9.53	6.18	14.61	8.79	5.39
5-9	14.84	10.16	6.65	14.07	9.43	5.85
10-14	13.48	11.00	7.02	12.97	10.38	6.21
15-19	8.25	10.30	6.94	8.70	10.50	6.30
20-24	8.11	10.33	6.39	8.84	11.07	6.11
25-29	7.22	8.83	5.68	8.04	9.46	5.62
30-34	6.24	7.31	6.93	6.45	7.18	6.87
35-39	6.06	7.08	7.68	5.89	7.01	7.61
40-44	4.55	5.34	7.57	4.36	4.90	7.58
45-49	4.31	4.60	7.61	4.12	4.59	8.02
50-54	3.33	3.66	7.52	3.29	3.65	8.13
55-59	2.63	3.26	6.53	2.60	3.45	6.99
60-64	2.18	2.93	5.41	2.28	3.08	5.56
65-69	1.42	2.28	4.52	1.48	2.53	4.62
70-74	0.97	1.40	3.32	1.05	1.57	3.53
75+	1.09	1.76	4.04	1.22	2.14	5.62

Source: Calculated by the authors from the 1961 and 1991 census data; 2021 data are taken from the projections made by K C Zachariah and S Irudaya Rajan of the Centre for Development Studies, Trivandrum.

Table 8: Components of Population Growth, Kerala, 1901-1991

Census Year	Population (000s)	Inter-censal Growth	Rate of Net Migration	Rate of Natural Increase	Percentage to total Population of India
1901	6,398	-	-	-	2.68
1911	7,148	1.11	0.03	1.08	2.84
1921	7,802	0.88	0.04	0.84	3.10
1931	9,507	1.98	0.12	1.86	3.41
1941	11,032	1.49	-0.01	1.49	3.46
1951	13,549	2.06	-0.11	2.16	3.75
1961	16,904	2.21	-0.20	2.41	3.85
1971	21,347	2.31	-0.16	2.47	3.89
1981	25,454	1.75	-0.22	1.97	3.72
1991	29,074	1.32	-0.31	1.63	3.44

Sources: P N Mari Bhat and S Irudaya Rajan (1990);
K C Zachariah and S Irudaya Rajan et.al, (1997).

Table 9: Fertility Assumption Assumed in the Various Projections

Period	PROJECTION I (LOW)	PROJECTION II (MEDIUM)	PROJECTION III (HIGH)
1991-1996	1.7	1.7	1.7
1996-2001	1.6	1.7	1.7
2001-2006	1.5	1.7	1.7
2006-2011	1.4	1.7	1.7
2011-2016	1.4	1.7	1.8
2016-2021	1.4	1.7	1.8
2021-2026	1.4	1.7	1.9
2026-2031	1.4	1.7	1.9
2031-2036	1.4	1.7	2.0
2036-2041	1.4	1.7	2.0
2041-2046	1.4	1.7	2.0
2046-2051	1.4	1.7	2.0

Table 10: Expectation of life at Birth Assumed in the Projections

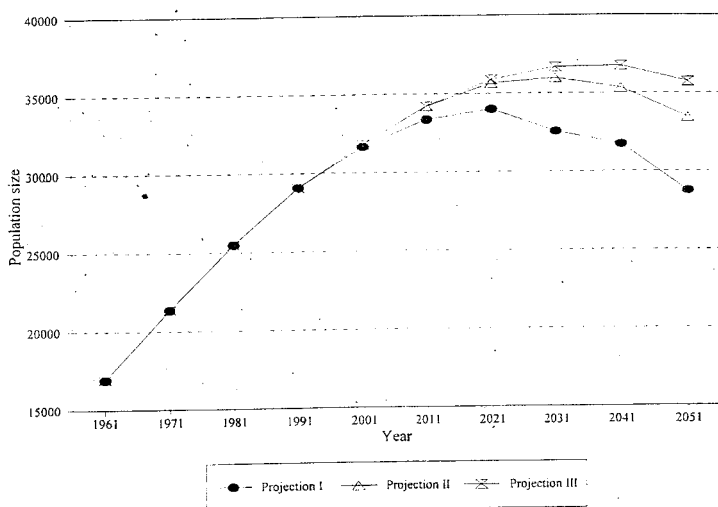
Period	Expectation of Life at Birth	
	Males	Females
1991-1996	73.43	79.43
1996-2001	74.47	80.47
2001-2006	75.20	81.20
2006-2011	75.78	81.78
2011-2016	76.29	82.29
2016-2021	76.74	82.74
2021-2026	77.15	83.15
2026-2031	77.53	83.53
2031-2036	77.89	83.89
2036-2041	78.23	84.23
2041-2046	78.55	84.55
2046-2051	78.85	84.85

Population Stabilization and Zero Population Growth

The current population of Kerala is estimated to be about 30.4 million and the decadal growth during 1981-91 was about 3.5 million. It is unlikely that future decades will see anything like the growth of the past decades. During 1991-2001, the population growth is unlikely to be more than 2.5 million (see Table 11). The population growth in Kerala during 1961-91 and projected growth according to the three alternate projections are shown in Chart I.

Table 11: Population Projections for Kerala, 1996-2051

Year	Proj I (‘000)	G Rate (percent)	Proj II (‘000)	G Rate (percent)	Proj III (‘000)	G Rate (percent)
1991	29074	--	29074	--	29074	--
1996	30374	0.87	30374	0.87	30374	0.87
2001	31624	0.81	31769	0.90	31769	0.90
2006	32641	0.63	33076	0.81	33076	0.81
2011	33343	0.43	34202	0.67	34202	0.67
2016	33817	0.28	35074	0.50	35207	0.58
2021	33995	0.11	35633	0.32	35888	0.38
2026	33871	-0.07	35913	0.16	36398	0.28
2031	32459	-0.24	35965	0.03	36678	0.15
2036	32745	-0.43	35778	-0.10	36837	0.09
2041	31727	-0.63	35319	-0.26	36750	-0.05
2046	30390	-0.86	34536	-0.45	36369	-0.21
2051	28760	-1.10	33449	-0.64	35717	-0.36

Chart I: Population Growth in Kerala Past, Present and Future

These figures indicate that Kerala's population growth has lost much of its momentum. The present indications are that the total population of the State is unlikely to cross 37.0 million. Kerala is likely to achieve zero population growth (ZPG) in 25 to 30 years from now. It is not impossible that Kerala will have short periods of negative growth rates. Thus the demographic situation of the State in the next half a century will be very much different from that of the previous half a century. The socioeconomic impact of population growth will be vastly different. Some of these are examined below in detail.

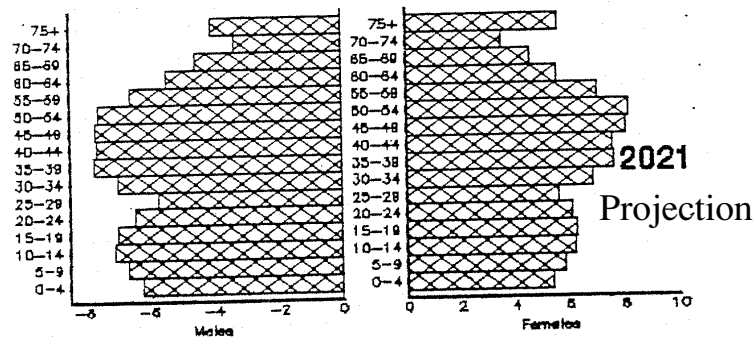
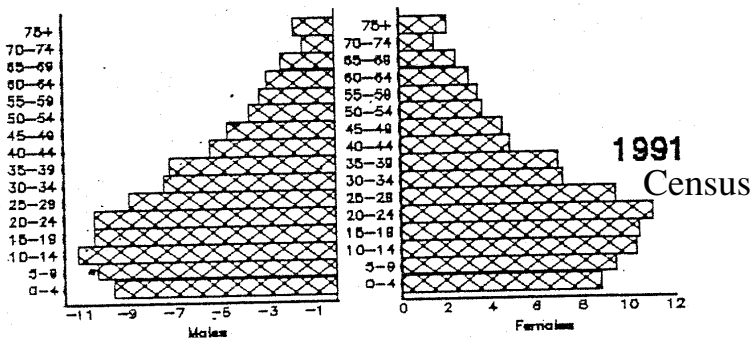
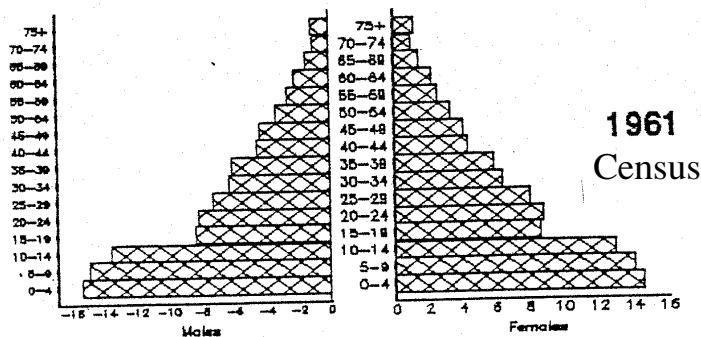
Changing Age Structure

One way by which demographic trends affect the socioeconomic conditions is through changes in the age composition of the population. Trends in fertility rate, mortality rate and migration have some repercussion on the age structure of the population. Chart II gives the age pyramid of Kerala's population in 1961, 1991 and 2021. The changes in the proportion of children in Kerala's population, the proportion of working age population, and that of the elderly are very clearly brought about in these pyramids (See also Tables 7 and 12). We begin this analysis by taking up the changes in the number and proportion of children in Kerala. These numbers are directly relevant for the State's educational planning. The projected population by age and sex for the periods 1991 to 2051 is available in Appendix I.

Table 12: Demographic Scenario: Past, Present and Future

Year	Total ('000)	G Rate (Percent)	Children ('000)	G Rate (Percent)	Aged ('000)	G Rate (Percent)
1961	16904	--	7205	--	986	--
1971	21347	2.33	8595	1.76	1328	2.98
1981	25451	1.76	8901	0.35	1910	3.63
1991	29074	1.33	8617	-0.32	2573	2.98
2001	31769	0.89	7429	-1.48	3442	2.91
2011	34201	0.74	7230	-0.27	4642	2.99
2021	35633	0.41	6624	-0.88	6541	3.56
2031	35965	0.09	5785	-1.35	9169	3.25
2041	35319	-0.18	5419	-0.65	11080	1.89
2051	33449	-0.54	4921	-0.96	11732	0.57

Chart II: Age Pyramids For Kerala



Educational Planning

Children are defined as those under 15 years in this discussion. The number of children in a population is mostly by the contribution of number of births and to a lesser extent by migration among children. As birth rate has declined very considerably (from about 40 in 1950s to about 17 in 1993), dramatic decline in the number of children should be expected. Part of the expected changes in the number of children is, however, cancelled by the increase in the number of mothers and the decline in the death rate among the children. Table 12 gives the number of children under 15 years according to the various censuses since the formation of Kerala (1st November 1956) as per Projection II.

Between 1961 and 1981 there was an increase of about 1.7 million children under 15 years, but since then the number has been on the down hill. During the next 20 years, that is by the end of the century, the increase would have been almost negligible. The number of children in 2001 would be closer to the figures of 1961.

Decomposition of the total by 5-year age groups indicates that the decline will be the largest in the very young age group. School age population will shrink considerably in the coming decades. Children in the primary school ages (taken as 5-9 years for convenience) will decline from 2,847 thousands in 1991 to 1,638 thousands in 2051. In the secondary school ages also (taken as 10-14 years for convenience) similar decline is observed. (See Table 13)

The implication of such drastic decline in school population has been evident for quite some time in Kerala. A decline of 32 per cent in school age population will necessitate a corresponding decline in the number of class rooms, number of teachers, etc. Policies and programmes taking these major demographic shifts might take some time to be implemented, but the adjustments are inevitable (**more details, see Government of Kerala, 1994; James, 1995; Irudaya Rajan and Mishra, 1996; 1997a**).

Table 13: Decomposition of Children under 15 years

Year	Children Under 15 years (.000)	Proportion to Total Population	Children 5-9 years (Primary)	Children 10-14 years (Secondary)
1961	7205	42.62	2443	2235
1971	8595	40.26	2876	2864
1981	8901	34.97	2922	3258
1991	8617	29.64	2847	3108
2001	7429	23.40	2256	2726
2011	7230	21.10	2434	2402
2021	6624	18.60	2219	2349
2031	5785	16.10	1896	2012
2041	5419	15.30	1814	1834
2051	4921	14.70	1638	1729

Apart from schooling, the repercussion of decline in children's population will be felt in many other areas of economic activity- children's clothing industry, toy manufacturing, health professionals involved in child birth and children's health maintenance, etc. Economic activities catering children and pregnant women are bound to shrink and will require considerable structural adjustment in the coming years. One saving factor is that not all children make use of these services now, and an increase in the proportion of children using these services will partly compensate for the decrease in the number of children. Children are likely to get a better deal in the coming years.

One aspect of the census statistics on the number of children in the school going ages deserves special mention. The number of children

enumerated in the censuses of 1971, 1981 and 1991 has always been larger than the corresponding cohort (after adjusting for the intercensal mortality) in the previous census (Table 14). Thus the number of children in the 10-14 age group in 1971 was in excess of the survivors of children 0-4 years enumerated in 1961 by as much as 766 thousands. This is not an isolated incident of the 1961 and 1971 censuses. Similar anomaly is observed in the 1981 and 1991 censuses and the differences are 904 thousands and 866 thousands respectively. A number of explanations could be given for this anomaly: underenumeration of children in 0-4 years, misstatement of age, etc. But since the differences are very large (32 per cent) and there is considerable correspondence between the number of children under 5 years and the number of births in the previous 5 years, other explanations are needed. One hypothesis is that Keralites

Table 14: Some Special Feature Observed in Census Among Children

Actual 0-4 in 1961	Expected Survivors as 10-14 in 1971	Actual Enumerated as 10-14 in 1971	Difference
2527160	2097084	2863885	766801
Actual 0-4 in 1971	Expected Survivors as 10-14 in 1981	Actual Enumerated as 10-14 in 1981	Difference
2855404	2353260	3257922	904662
Actual 0-4 in 1981	Expected Survivors as 10-14 in 1991	Actual Enumerated as 10-14 in 1991	Difference
2720731	2240651	3107600	866949

outside Kerala send their children back to Kerala for school education. This is only a hypothesis, but if found correct, could have some policy implications.

Labour Force

As mentioned above, unemployment, especially unemployment among the educated is one of the major economic and social problems of Kerala. A number of factors are involved in the emergence of unemployment as a very serious problem and rapid population growth since the 1950s is one among them. Efforts to find a solution of the unemployment problem are hampered by the demographic explosion in the State.

Table 15: Population in Working Ages in Kerala, 1961-2051.

Year	Numbers			50-64
	20-64	20-34	34-49	
1961	7639624	3798636	2474651	1366337
1971	9568105	4586988	3234650	1746467
1981	12312589	6290800	3709377	2312412
1991	15660910	7878650	4871010	2911250
2001	18950664	8665863	6565096	3719705
2011	22905308	8078800	8459581	6366927
2021	22070831	6695974	8210795	7164062
2031	21524558	6504858	7045439	7974261
2041	19510631	5905723	6156965	7447943
2051	17313001	5075630	6075687	6161684

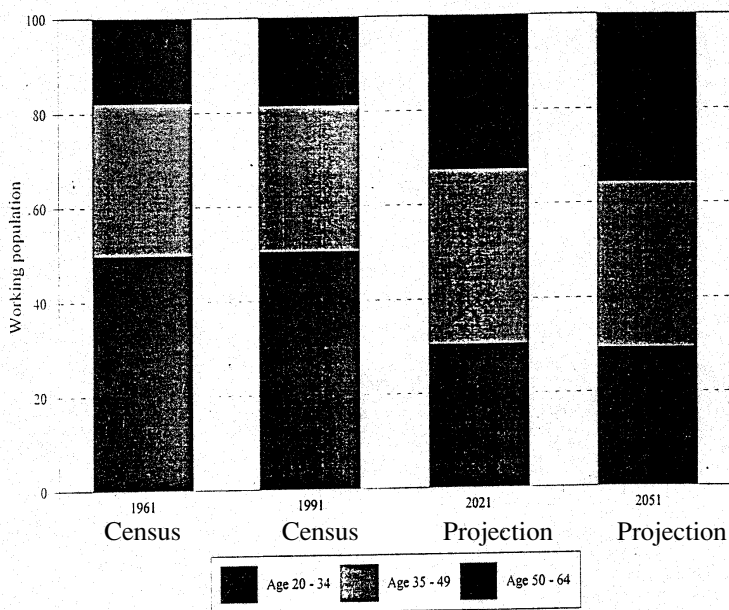
Growth Rate

	20-64	20-34	34-49	50-64
1961-71	2.25	1.89	2.68	2.45
1971-81	2.52	3.16	1.37	2.81
1981-91	2.41	2.25	2.72	2.30
1991-01	1.91	0.95	2.98	2.45
2001-11	1.90	-0.70	2.54	5.37
2011-21	-0.37	-1.88	-0.30	1.18
2021-31	-0.25	-0.29	-1.53	1.07
2031-41	-0.98	-0.97	-1.35	-0.68
2041-51	-1.20	-1.51	-0.13	-1.90

In 1961, there were only about 7,640,000 persons in the working ages 20-64 years in Kerala (Table 15). This number has increased to about 15,660,000 by 1991 (a 105 % increase). Our projections indicate that the number of persons in the working age would increase further to about 22,071,000 by 2021 (a 41 % increase), and then decline (by 22%) to about 17,313,000 by 2051 (*It may be noted that most of the persons above 20 years in 2021 were already born before the 1991 census and therefore our projection of working age population for 2021 are quite realistic*). Thus the accentuation in the employment problem in the state is certainly partly due to the demographic pressure. In spite of the very rapid decline in the birth rate in the State for the last two decades, the demographic pressure on the labour force will not disappear for quite some time. It is only after 2021, that we may expect a real decline in the number of persons in the working ages.

There will, however, be a significant decline in the growth rate of the labour force beginning with the first decade of the next century and some actual decline after 2021. Equally important will be the change in the structure of the working age population. In 1961 and 1991 the proportion of the working age population in the young working ages (20-34 years) was nearly half of the total: 49.7 in 1961 and 50.3 in 1991. But after 1991, the proportion of the young will undergo a dramatic decline to less than 30 percent. Between 1991 and 2021, the actual number of such young workers will decrease by 1.1 million. Thus the unemployment problem among the young will greatly ease in the coming years. Other things being equal on the economic front such an easing of the employment problem is almost inevitable. (See chart III)

Chart III: Proportion of Working Population 1961-2051



Just the opposite is the case among the older workers (those above 50 years). The proportion of the population in the 50-64 year bracket will increase from 18.6 in 1991 to 35.5 by 2021. The actual number will also increase very considerably, from 2,911,000 in 1991 to 7,164,000 by 2021 (a 146 % increase). Finding suitable employment for the older working age population will be a major challenge in the employment front in the early part of the next century.

The population in the middle ages (35-49 years) will also increase very considerably in absolute terms (3,439,000) during 1991-2021, but in relative terms their share changes very little, (from 31 per cent to 35 per cent).

Marriage Squeeze

One consequence of a rapidly declining fertility rate is its effect on the parity between the number of girls and the number of boys in the marriage age groups. As girls are married at relatively younger ages the number of girls in the marriage market usually exceeds the number of eligible boys. However, the situation changes considerably if fertility were to fall rapidly as in Kerala in the last two decades. The effect of fertility decline is felt first in the number of girls in their usual ages at marriage. As boys usually get married at higher ages, the effect of fertility decline on their size is felt 5 to 6 years later.

Table 16: Population in Marriageable Ages in Kerala

Year	Girls 20-24 Years	Boys 25-29 Years	Difference	
			Absolute Increase	Percentage Increase
1961	755227	604244	150983	19.99
1971	1012032	664365	347667	34.35
1981	1364026	1005881	358145	26.26
1991	1634240	1263540	370700	22.68
2001	1448101	1377910	70191	4.85

In Kerala, most of the girls get married when they are in the age group 20-24 years and most of the boys get married when they are in the 25-29 age group. The difference between the number of girls in the 20-24 age group and the number of boys in the age group 25-29 years is a measure of the marriage squeeze in the State. These numbers are given in Table 16 for the years 1961 to 2001.

Girls in the age group 20-24 years always outnumbered boys in the age group 25-29 years. The excess of girls was as much as 20 per

cent of the number of boys in 1961. It increased to 34 in 1971 greatly increasing the marriage squeeze. Since then it has been on the decline. In the coming years, girls have a much wider choice in finding a suitable groom than they ever had in the past in Kerala. The number of girls in the 20-24 year age group will be more or less the same as the number of boys in the 25-29 year age group in 2001. This is a welcome consequence of the decline fertility in the last two decades. One could speculate a decline in the age at marriage of girls in the coming years!¹

The Elderly

One of the inevitable consequences of demographic transition is population aging. Being ahead in the demographic transition, Kerala is expected to increase the number of elderly and the proportion in the years to come (**Irudaya Rajan, 1989; Irudaya Rajan and Mishra, 1997b**). The aging population is defined as those above 60 years of age. According to the 1961 census, the number of elderly was just one million, which increased to 2.6 millions in 1991 census (a 161 % increase). According to our projections, the number of the elderly is expected to reach 6.62 millions by 2021 (a 157 %increase) and 11.7 millions by 2051 (a 77 % increase). The change in the proportion of the elderly is even more dramatic. Their proportion was around 9 percent in 1991 but it is expected to increase to 19 per cent in 2021 and 35 percent in 2051 (Table 17).

¹ The projected number of boys and girls in 2001 partly depends on the extent of age-sex selective migration. In the Projections, we have used a migration rate of -0.25 percent with a standard age sex composition. Therefore, the convergence of the number of girls and boys by 2001 to near equal is unlikely to be a consequence of the migration assumption.

Table 17: Composition of Young Old and Old Old in Kerala

Year	60-74 75+		60-74 75+		60-74 75+		Proportion to Total	
	Number		Proportion		Growth Rate		60+	70+
	('000)							
1961	793	193	80.44	19.56	--	--	5.83	1.14
1971	1060	267	79.87	20.13	2.90	3.25	6.22	1.25
1981	1519	391	79.52	20.48	3.59	3.81	7.50	1.54
1991	2005	568	77.92	22.08	2.78	3.74	8.85	1.95
2001	2571	871	74.69	25.31	2.48	4.27	10.83	2.74
2011	3355	1287	72.27	27.73	2.66	3.90	13.57	3.76
2021	4889	1735	73.81	26.19	3.77	2.98	18.59	4.87
2031	6604	2565	72.02	27.98	3.01	3.91	25.49	7.13
2041	7408	3700	66.69	33.31	1.15	3.36	31.45	10.48
2051	6932	4800	59.08	40.92	-0.66	2.60	35.07	14.36

The decomposition of elderly by age and categorizing them as young old (60-74) and old old (75+) provides additional information on the old age problem in the State. Among all the age groups of the population, the fastest growing group is the old old. Additional demographic information on the elderly is provided in the Table 17.

In 1995, Kerala administers more than 30 social security and assistance schemes for the elderly and disadvantaged groups. The annual budget provision for all schemes is more than 100 crores. In addition, more than 400 crores are spent on the pensions every year for the retired government employees numbering around 3 lakhs.

The old age pension scheme was first started on 1st November 1960 and the widowed and destitute pension scheme was added on 1st January 1964. The scheme provides pension to the old age destitute and

widowed/divorced destitute subject to fulfillment of the following eligibility conditions: (a) The destitute persons residing in Kerala for a continuous period not less than two years; (b) The destitute person is above 65 years of age. However, the age limit does not apply to a widowed or divorced destitute. A recipient under this scheme is entitled for Rs. 80 per month. An additional amount of Rs.5 per month is paid to a widow if she has a minor child to support.

The 1981 census revealed that divorced/widowed/deserted population accounts for about 15 lakhs or 6 per cent of the population. Calculations based on the 1991 census data are given below:

Number of Widows in Kerala (1991)	17.15 lakhs
Number of Widows above 60 years of age	8.05 lakhs
Proportion of widows among total women	10.55 per cent
Proportion of widows among older women	67.40 per cent
The Widow pension beneficiaries (1991)	1.68 lakhs
The Cost of the scheme (1991)	Rs. 144.0 lakhs
Actual coverage	9.78 per cent
If all elderly widows of 1991 are covered by the scheme, the estimated cost	Rs. 644 lakhs
If all widows in Kerala of 1991 to be covered by the scheme, the estimated cost	Rs.1372 lakhs
At least 75 per cent of the widows are to be covered the estimated cost	Rs.1029 lakhs

Thus, 67 per cent of the elderly women are widows as of 1991 census. The actual coverage of the scheme is only 9.78 per cent. The cost is expected to increase from Rs. 144 lakhs to Rs. 644 lakhs, if all elderly widows are covered in the scheme. In 1991, all the schemes

existing in Kerala covers only 25 per cent of the 60+ population. The cost is approximately Rs.100 crores. If the government could cover the entire elderly, the approximate money required is Rs. 400 crores. In 2021, if the government extends its benefits to all elderly persons numbering around 7.0 millions, then the estimated cost is around Rs. 1388 crores.

The issue of the social support for the elderly needs to be addressed in the context of not only the aging population but also the overall change in the age structure. The political economy will also change and there will be other efficient systems of support which are expected to emerge.

There is still one more point to be noted. In 1996, the proportion of old voters in Kerala is 14, about 1 in 7, a respectable proportion by any standards. The proportion is expected to increase to 1 in 5 in 2021. Thus the elderly will be a formidable vote bank in the next century. They will, if they really want, be able to change the rules of the political economy to serve their self interest.

Conclusions

Kerala's demographic trends in the first half of the 21st century will be dramatically different from that of the second half of the 20th century. Where as the total population of the state increased by 135 percent in the second half of the last century (from 13,549,000 in 1951 to 31,769,000 in 2001), the growth (if any) in the next half a century will be very negligible. The crude death rate declined from about 20 to about 6 in the last half a century, but it is likely to increase from 6 to 13 in the next century. The crude birth rate decreased from 40 to about 16 in the last half a century, but it is likely to remain more or less stable in the next half a century. While Kerala experienced varying degrees of net out-migration and net emigration in the last half a century, migration trend in the next half a century is somewhat uncertain. It will depend more on socio-economic developments than on demographic trends.

The socioeconomic implications of the reversal of the demographic trends will be far reaching.

To begin with, the pressure on schools and colleges will be a thing of the past, giving ample opportunities for the educational system to concentrate on the quality of education rather than on quantity.

This is also true of hospitals and health personnel catering to the health needs of the children. It will be easier to bring about the needed improvement in the quality of their services.

In the transitional period, parity between the number of girls and boys in their respective marriage ages will be maintained. But this is a temporary respite.

Other things being equal on the economic front, unemployment among the young working age population will be greatly reduced. The educated young workers might be able to pick and choose the job they want. But this is not the case with older workers. The number of older working population would almost double in a short period of 20 years between 2001 and 2021.

In the last half a century the major socioeconomic problems were related to the schooling, maintenance of health and nutrition and finding employment to the youngsters. In the next half a century, the major socioeconomic problems would be finding gainful employment to the older working age population, maintenance of the health and nutrition of the elderly, and providing them with means of subsistence through social security, pension, etc.

In 1991, all the schemes existing in Kerala covers only 25 per cent of the 60+ population. The cost is approximately Rs 100 crores. If the government could cover the entire elderly, the approximate money required is Rs. 400 crores. In 2021, if the government extend its benefits to all elderly person numbering around 7.0 millions, then the estimated cost is around Rs. 1388 crores.

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APPENDIX I
PROJECTED POPULATION BY AGE AND SEX FOR KERALA, 1996-2051

AGE GROUP	1991			1996		
	MALES	FEMALES	PERSONS	MALES	FEMALES	PERSONS
0 - 4	1412723	1361047	2773770	1167610	1117322	2284932
5 - 9	1539236	1496809	3036045	1390674	1352407	2743081
10 - 14	1527613	1495207	3022820	1527066	1491531	3018597
15 - 19	1503825	1570583	3074408	1476136	1477385	2953521
20 - 24	1434091	1580181	3014272	1418684	1540875	2959559
25 - 29	1256134	1370752	2626886	1392980	1565985	2958965
30 - 34	1075221	1111213	2186434	1227859	1361958	2589817
35 - 39	959005	952875	1911880	1056279	1104841	2161120
40 - 44	791589	772188	1563777	942757	946226	1888983
45 - 49	636130	635756	1271886	775940	764638	1540579
50 - 54	530644	554091	1084735	617535	626261	1243796
55 - 59	462216	496063	958279	507535	541987	1049522
60 - 64	411593	451955	863548	432324	480042	912366
65 - 69	319674	359771	679445	371030	429391	800421
70 - 74	205867	240716	446583	271004	329615	600619
75+	249610	309675	559285	282671	385063	667733
All ages	14315171	14758882	29074052	14858085	15515527	30373610
Median age	24.1	24.6	24.4	26.6	27.5	27.1
SUMMARY						
Under 15	4479572	4353063	8832635	4085350	3961260	8046610
15 - 49	7655995	7993548	15649543	8290636	8761908	17052542
50 - 59	992860	1050154	2043014	1125070	1168248	2293318
60+	1186744	1362117	2548861	1357029	1624111	2981140

AGE GROUP	2001			2006		
	MALES	FEMALES	PERSONS	MALES	FEMALES	PERSONS
0 - 4	1251087	1195782	2446869	1260256	1202864	2463120
5 - 9	1146538	1109361	2255899	1230208	1187857	2418065
10 - 14	1379058	1347458	2726516	1135380	1104708	2240088
15 - 19	1476049	1473951	2950000	1328670	1330174	2658844
20 - 24	1391544	1448101	2839645	1391752	1444835	2836587
25 - 29	1377910	1527023	2904933	1351089	1434586	2785675
30 - 34	1364290	1556995	2921285	1349550	1518355	2867905
35 - 39	1208462	1355105	2563567	1344490	1549865	2894355
40 - 44	1039850	1097881	2137731	1191292	1347400	2538692
45 - 49	925912	937885	1863798	1022489	1088965	2111454
50 - 54	755301	754262	1509563	903015	926212	1829227
55 - 59	592918	613765	1206682	727330	740456	1467786
60 - 64	477428	526032	1003460	560107	597161	1157268
65 - 69	393069	458377	851446	436754	504315	941069
70 - 74	318885	397050	715935	341017	426812	767829
75+	356907	514266	871173	439654	658310	1097964
All ages	15455209	16313294	31768502	16013053	17062874	33075928
Median age	28.9	30.2	29.6	31.1	32.7	32.0
SUMMARY						
Under 15	3776683	3652601	7429284	3625844	3495429	7121273
15 - 49	8784017	9396941	18180958	8979332	9714180	18693512
50 - 59	1348219	1368027	2716246	1630345	1666668	3297013
60+	1546290	1895725	3442015	1777532	2186598	3964130

AGE GROUP	2011			2016		
	MALES	FEMALES	PERSONS	MALES	FEMALES	PERSONS
0 - 4	1224945	1168214	2393159	1150207	1096774	2246981
5 - 9	1239641	1195039	2434680	1204570	1160530	2365100
10 - 14	1219162	1183263	2402425	1228726	1190550	2419276
15 - 19	1085670	1087744	2173414	1169483	1166341	2335824
20 - 24	1245157	1301380	2546537	1003210	1059368	2062578
25 - 29	1351449	1431456	2782905	1205680	1288364	2494044
30 - 34	1323058	1426300	2749358	1323579	1423320	2746899
35 - 39	1330173	1511631	2841804	1304121	1420065	2724186
40 - 44	1326720	1541699	2868419	1312968	1504005	2816973
45 - 49	1172701	1337293	2509994	1307173	1530876	2838049
50 - 54	998536	1076328	2074864	1146659	1322834	2469493
55 - 59	871560	910508	1782069	965451	1059273	2024724
60 - 64	689486	721914	1411400	828655	889323	1717978
65 - 69	514975	574368	1089344	636824	696378	1333203
70 - 74	381776	472193	853969	453245	540414	993659
75+	507384	779749	1287134	582588	902475	1485064
All ages	16482393	17719080	34201472	16823140	18250890	35074028
Median age	33.3	35.2	34.3	35.5	37.6	36.6
SUMMARY						
Under 15	3683748	3546516	7230264	3583503	3447854	7031357
15 - 49	8834928	9637503	18472432	8626214	9392339	18018552
50 - 59	1870096	1986836	3856932	2112110	2382107	4494217
60+	2093621	2548225	4641846	2501313	3028590	5529903

AGE GROUP	2021			2026		
	MALES	FEMALES	PERSONS	MALES	FEMALES	PERSONS
0 - 4	1051268	1003376	2054644	983778	939614	1923393
5 - 9	1129994	1089222	2219216	1031219	995955	2027174
10 - 14	1193760	1156124	2349884	1119290	1084898	2204188
15 - 19	1179190	1173706	2352896	1144410	1139373	2283783
20 - 24	1086900	1137950	2224850	1096727	1145377	2242104
25 - 29	965010	1046811	2011821	1048419	1125327	2173746
30 - 34	1178680	1280623	2459303	939277	1039606	1978883
35 - 39	1304877	1417292	2722169	1160917	1275097	2436014
40 - 44	1287464	1413103	2700567	1288541	1410595	2699136
45 - 49	1294175	1493884	2788059	1269491	1403917	2673408
50 - 54	1279257	1515216	2794473	1267233	1479139	2746372
55 - 59	1110238	1303139	2413377	1240142	1493748	2733890
60 - 64	920081	1036131	1956212	1060396	1276344	2336740
65 - 69	768560	859954	1628514	856462	1003979	1860441
70 - 74	564281	657924	1222206	685142	815392	1500535
75+	687460	1047073	1734533	842346	1250706	2093052
All ages	17001196	18631528	35632720	17033790	18879068	35912856
Median age	37.7	40.0	38.9	40.0	42.5	41.3
SUMMARY						
Under 15	3375022	3248722	6623744	3134287	3020467	6154755
15 - 49	8296296	8963369	17259664	7947782	8539292	16487074
50 - 59	2389495	2818355	5207850	2507375	2972887	5480262
60+	2940383	3601082	6541464	3444346	4346421	7790767

AGE GROUP	2031			2036		
	MALES	FEMALES	PERSONS	MALES	FEMALES	PERSONS
0 - 4	959623	916776	1876399	941551	899674	1841225
5 - 9	963843	932283	1896127	939758	909509	1849267
10 - 14	1020612	991700	2012312	953312	928093	1881405
15 - 19	1070169	1068254	2138423	971724	975166	1946890
20 - 24	1062198	1111150	2173348	988310	1040169	2028479
25 - 29	1058300	1132788	2191088	1024021	1098667	2122688
30 - 34	1022382	1118040	2140422	1032313	1125555	2157868
35 - 39	922847	1034778	1957625	1005701	1113142	2118843
40 - 44	1145859	1269118	2414977	909608	1029793	1939401
45 - 49	1271046	1401791	2672837	1130286	1261395	2391681
50 - 54	1243656	1390474	2634130	1245805	1388828	2634633
55 - 59	1229632	1458981	2688613	1207795	1372199	2579994
60 - 64	1186808	1464710	2651518	1178765	1432010	2610775
65 - 69	990453	1239120	2229573	1112043	1424505	2536548
70 - 74	767710	955081	1722791	892441	1182443	2074884
75+	1035315	1529721	2565036	1220519	1843225	3063744
All ages	16950452	19014764	35965216	16753952	19024372	35778320
Median age	41.7	44.7	43.3	42.9	46.6	45.0
SUMMARY						
Under 15	2944078	2840760	5784838	2834621	2737276	5571897
15 - 49	7552801	8135919	15688720	7061963	7643887	14705850
50 - 59	2473288	2849455	5322743	2453600	2761027	5214627
60+	3980286	5188632	9168918	4403768	5882183	10285950

AGE GROUP	2041			2046		
	MALES	FEMALES	PERSONS	MALES	FEMALES	PERSONS
0 - 4	905232	865363	1770596	850554	813710	1664264
5 - 9	921748	892455	1814203	885504	858203	1743707
10 - 14	929282	905360	1834643	911324	888346	1799670
15 - 19	904601	911645	1816247	880682	888967	1769650
20 - 24	890273	947231	1837504	823448	883814	1707263
25 - 29	950546	1027829	1978375	853000	935058	1788058
30 - 34	998283	1091561	2089844	925214	1020896	1946110
35 - 39	1015718	1120742	2136460	981964	1086918	2068882
40 - 44	992118	1108067	2100185	1002275	1115800	2118075
45 - 49	896780	1023540	1920320	978785	1101661	2080446
50 - 54	1108043	1249991	2358034	878925	1014348	1893273
55 - 59	1210921	1371268	2582189	1077629	1234649	2312278
60 - 64	1159701	1348019	2507720	1164474	1348269	2512743
65 - 69	1107669	1394935	2502604	1092657	1315063	2407720
70 - 74	1006865	1363289	2370154	1007400	1338552	2345952
75+	1438523	2261790	3700313	1668882	2708777	4377659
All ages	16436304	18883086	35319392	15982719	18553032	34535752
Median age	43.5	47.8	45.7	44.4	48.6	46.6
SUMMARY						
Under 15	2756263	2663179	5419442	2647383	2560258	5207641
15 - 49	6648319	7230615	13878934	6445369	7033115	13478483
50 - 59	2318964	2621259	4940223	1956554	2248997	4205551
60+	4712758	6368033	11080791	4933413	6710661	11644074

AGE GROUP	2051		
	MALES	FEMALES	PERSONS
0 - 4	793957	760249	1554206
5 - 9	830901	806607	1637509
10 - 14	875126	854124	1729250
15 - 19	862825	872003	1734828
20 - 24	799676	861200	1660877
25 - 29	786514	871753	1658268
30 - 34	828158	928327	1756485
35 - 39	909334	1016489	1925823
40 - 44	968906	1082219	2051125
45 - 49	989145	1109592	2098737
50 - 54	959961	1092165	2052126
55 - 59	854993	1002118	1857111
60 - 64	1037610	1214837	2252447
65 - 69	1099919	1317168	2417087
70 - 74	997890	1265039	2262929
75+	1812272	2987886	4800158
All ages	15407186	18041776	33448962
Median age	45.2	49.4	47.4
SUMMARY			
Under 15	2999985	2420980	4920965
15 - 49	6144558	6741584	12886142
50 - 59	1814954	2094283	3909237
60+	4947691	6784930	11732620

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