Chapter 8

TREND IN LIFE EXPECTANCY

It is needless to emphasize the importance of studying the emerging trend in mortality and its future likely pattern in a developing country like India which is yet to achieve replacement fertility. As mentioned earlier, the study of mortality has always been fraught with limited data, although with the availability of SRS and other national level survey data on mortality and fertility makes it possible to use the same not only for developmental planning but also for monitoring national health and family welfare programme. This chapter presents the emerging trend in average expectation of life at different ages since the early 1970s and predicts its likely pattern in the future in the country. This trend analysis is basically done using SRS data based life tables, as the estimate of the present study derived from the two rounds of NFHS data, matches well with that of the SRS for the recent period.

Trend in Life Expectancy during 1970-2005

It is evident from Table 8.1, which shows average expectation of life of a person at different ages by sex for India during 1970 to 2005, that life expectancy at different ages has improved substantially for both males and females during the last three decades. Such an increase is, however, relatively more in case of females than males. For example, a life expectation at birth of 50.5 years for males and 49.0 years for females during 1970-75, increased to 62.3 years for males and 63.9 years for females during 2001-05, indicating thereby that the increase in e_o^o is relatively higher for females (14.9 years) compared to that for males (11.8 years). As a result, the sex differential in e_o^o which was almost non-existent or rather in favour of males during the early

Table 8.1: Life Expectancy at Selected Ages by Sex, India, 1970-1975 to 2001-2005

Age (x)	Period	Average expectation of life of a person e_x^o		
		Total	Male	Female
0	1970-75	49.7	50.5	49.0
	1981-85	55.5	55.4	55.7
	1991-95	60.3	59.7	60.9
	1993-97	61.1	60.4	61.8
	1996-00	61.9	61.0	62.7
	1997-01	62.2	61.3	63.0
	1998-02	62.5	61.6	63.3
	1999-03	62.7	61.8	63.5
	2000-04	63.0	62.1	63.7
	2001-05	63.2	62.3	63.9
1	1970-75	56.2	57.0	55.6
	1981-85	60.9	60.8	61.1
	1991-95	64.5	63.9	65.1
	1993-97	65.3	64.5	66.0
	1996-00	65.7	64.7	66.6
	1997-01	65.9	64.9	66.8
	1998-02	66.1	65.1	67.0
	1999-03	66.3	65.3	67.2
	2000-04	66.5	65.5	67.4
	2001-05	66.6	65.6	67.4
5	1970-75	57.5	57.5	57.5
	1981-85	60.8	60.1	61.8
	1991-95	62.9	61.8	63.9
	1993-97	63.4	62.2	64.6
	1996-00	63.8	62.3	65.2
	1997-01	64.0	62.5	65.6
	1998-02	64.2	62.7	65.8
	1999-03	64.5	63.0	66.2
	2000-04	65.0	63.3	66.7
	2001-05	65.2	63.5	67.0

Table 8.1 Continued .....

Age (x)	Period	Average expectation of life of a person e_x^o		
		Total	Male	Female
50	1970-75	20.4	19.8	21.3
	1981-85	22.4	21.4	23.8
	1991-95	23.5	22.3	24.8
	1993-97	23.8	22.5	25.1
	1996-00	24.2	22.8	25.5
	1997-01	24.4	23.0	25.7
	1998-02	24.6	23.2	26.0
	1999-03	24.8	23.4	26.3
	2000-04	25.1	23.6	26.5
	2001-05	25.2	23.7	26.7
70+	1970-75	8.9	8.6	9.2
	1981-85	10.2	9.7	11.0
	1991-95	10.6	10.0	11.0
	1993-97	10.8	10.1	11.4
	1996-00	11.1	10.4	11.7
	1997-01	11.3	10.6	11.9
	1998-02	11.4	10.6	12.0
	1999-03	11.5	10.7	12.1
	2000-04	11.6	10.8	12.2
	2001-05	11.7	10.9	12.3

Source: Registrar General India (1984; 1985; 1989; 1994; 1995a; 1995b; 1996a; 1996b; 1996c; 2000; 2004; 2005; 2006; 2007a; 2007b)

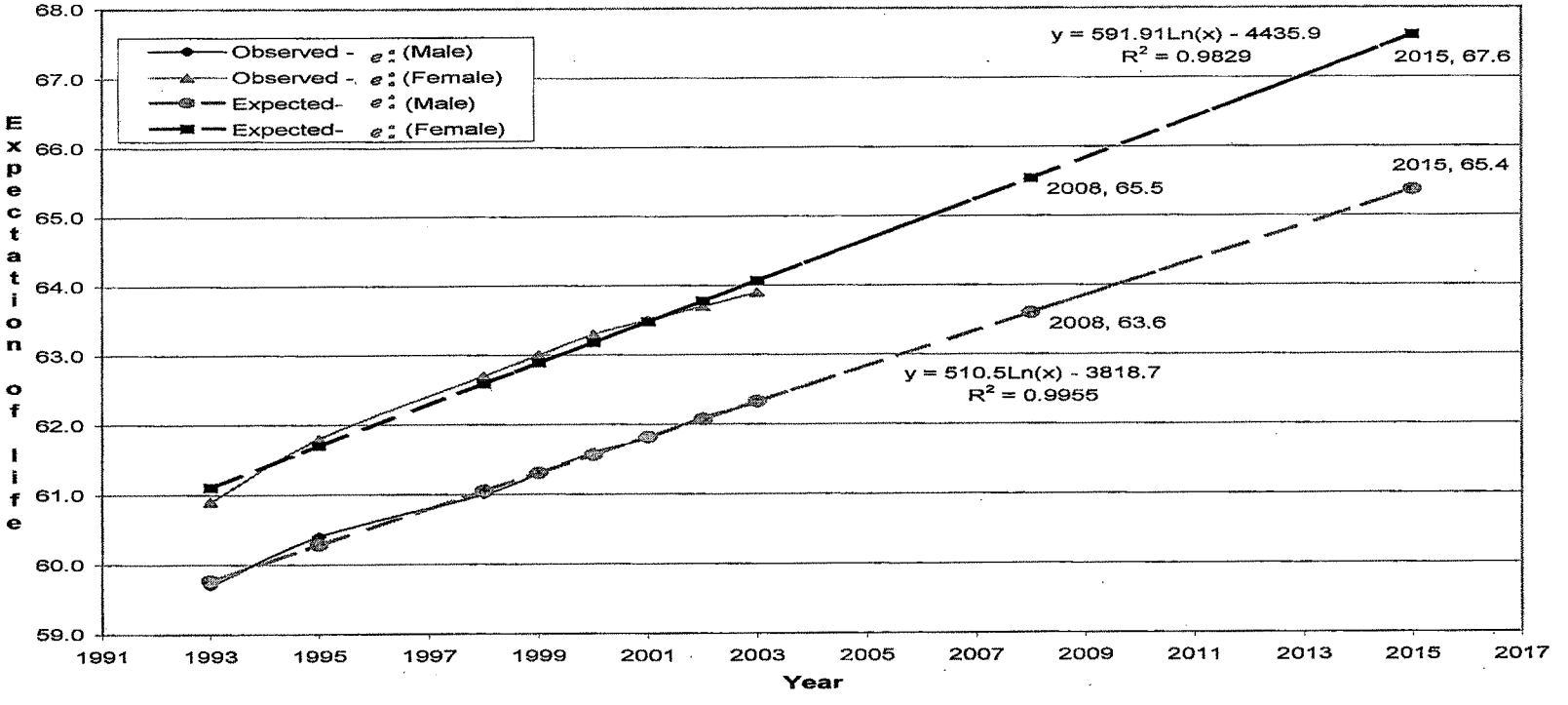
seventies or before increased over time in favour of females. Similarly, the life expectation at ages 1, 5, 50 and 70+ is higher for females than for males, particularly at ages 5 and above during the recent period (Table 8.1). The life expectancy at age 1 is 65.6 years for males as against 67.4 years for females during 2001-05. After age 1, although it decreases with age, the life expectancy at age 5 is 63.5 years for males as against 67.0 years for females during the same period (2001-05). The corresponding figures at age 50 are 23.7 years and 26.7 years for males and females respectively, indicating that percentage differential

in life expectancy by sex further increased in favour of females at age 50. The percentage male-female differential in life expectancy remains almost the same at age 70+, it being 10.9 years for males and 12.3 years for females during the recent period (2001-05). This is due to the fact that mortality has declined more rapidly among infants and children, more so among female children, as well as among women of reproductive ages. For example, the life expectancy at birth increased by 27 percent during the last three decades (1970-2005). The corresponding increase in e_o^o is about 23 percent for males as against 30 percent for females. After crossing the crucial year of infancy, the life expectancy at age 1 increased by 19 percent during the same period, although such an increase is much higher for females (21 percent) than it is for males (15 percent). The corresponding increase in e_o^o at age 5 during 1970-2005 is about 13 percent which is however again higher for females (17 percent) than males (10 percent). Similarly, the survival chances for females is relatively much higher than for males after age 50, the increase in life expectancy being 25 percent at age 50 and 34 percent at age 70+ for females as against 20 percent and 27 percent respectively, for males. Thus, for both males and females the overall gain in life expectancy at age 50 and 70+ is about 24 percent and 32 percent respectively during the last three decades.

Future Trend in Life Expectancy

Based on the past trend in life expectancy as revealed by the data shown in Table 8.1, an attempt has been made in this section to project the likely trend in life expectancy at birth in future, so as to understand the extent of decline in mortality in the process of achieving country's long term demographic goal. The projection of life

Figure 8.1: Observed and Expected Trend of Expectation of Life at Birth (e_o^o) at the All-India Level, 1990-2015



expectancy is done by fitting appropriate curve to the observed time series data. The result is presented in the Figure 8.1. As can be seen from Figure 8.1, the log-linear model fits well to the observed time series data on e_o^o for males and females and explains about 98-99 percent of the variance. Therefore, the fitted models are used for short-term projection of e_o^o for males and females. It is evident from Figure 8.1 that e_o^o for males and females which is expected to be about 63.6 and 65.5 years in 2008 is likely to increase further to about 65.4 and 67.6 years respectively by 2015, if the present rate of decline in mortality continues in the future.

With the rise in e_o^o, the differential between the sexes is likely to increase further in the country to about 2.2 years (from 1.7 years during 2001-05) by 2015 in favour of women which is similar to the pattern observed in developed and some other developing countries like China. Considering the current level of e_o^o and its differentials by sex in developed countries as well as in other developing countries, India is far behind as e_o^o for males and females is 74 and 81 years in more developed countries (with a male-female differential of 5 years) and 72 and 76 years in East Asia, including Japan and China (with a sex differential of 4 years in favour of females). Thus, India may not achieve the desired level of mortality in terms of e_o^o even by 2015 given its present pace of decline in mortality. Therefore, there is need for greater programme inputs and commitment to improve the survival of men and women across the life cycle, particularly during infancy and childhood.