Chapter 7

COMPARISON OF NFHS AND SRS DATA BASED LIFE TABLES

As we have noted in Chapter 3, the present study has derived the age specific death rate pattern for various states, regions and socio-economic communities as well as for the country as a whole, based on the combined estimate of the two rounds of NFHS conducted during the last decade (1991-1999) to minimize sampling errors arising out of small samples covered on each occasion of NFHS and finally constructed life tables for the same sub-groups of population, based on the combined estimate of ASDRs, to study the mortality pattern in the country. These results have already been presented and discussed in Chapters 4 to 6. Further, as per analysis plan, the estimates of ASDRs based on NFHS-1 and NFHS-2, which approximately refer to the period 1991-92 and 1997-98 respectively, were compared with that of the combined estimate, the over-all mean for the two occasions, along with their corresponding sampling error to establish efficacy of the combined estimate and the results, as expected, are satisfactory. The trend of ASDRs by sex even at the sub-national level, is more stable in the combined estimates of NFHS-1 and NFHS-2, where standard errors in all age and sex groups have substantially reduced compared to that in NFHS-1 or NFHS-2. Moreover, the trend of ASDRs by sex at the national level matches reasonably well with the pattern observed in the SRS data for the corresponding period. This to some extent, validates the estimates derived based on two rounds of NFHS data, since the Sample Registration System (SRS) is also a very large scale demographic sample survey based on the mechanism of a dual record system with the objective of providing reliable estimates of fertility and mortality indicators at the state and national level. In light of this assessment, the combined estimate of ASDRs based on NFHS

data were further used as input to construct sex specific abridged life tables for the present study.

About the SRS - based Life Tables

The Sample Registration System also regularly provides abridged life tables based on the average observed mortality pattern (ASDRs) of five years period, to maximize precision of the estimate so derived. An attempt has therefore been made here to compare our results with the SRS based life tables for the corresponding period to further validate our estimates obtained from the two rounds of NFHS data.

At the outset, it may be noted that SRS estimates are based on a much larger sample than that of NFHS and therefore SRS based estimates are expected to be more stable and have relatively less standard errors, provided certain non-sampling errors which are generally seen in large-scale demographic surveys, such as substantial under-reporting of deaths for one reason or the other, are minimum. In this regard, SRS follows the mechanism of a dual record system (that is continuous recording of births and deaths, which is followed by a six-monthly survey) to detect omission or duplication of vital events, while other national level surveys like NFHS include questions on the number of deaths occurring to usual residents in each household during a reference period, although adequate probing and verification on such vital questions are specifically done by the trained field staff to minimize such errors.

Extent of Consonance in the Two Estimates

Considering the data available in the SRS reports, a comparison of the estimates of expectation of life at birth (e_0^0) derived from the two rounds of NFHS (1992-98) with that based on SRS (1993-97) by sex according to state has been done and is provided in Table 7.1. It may

Table 7.1: Comparison of Estimates of Expectation of Life at Birth (e_o^o) Derived from the Two Rounds of NFHS with that Based on SRS Data, by State, India, 1995*

Total

State	Estimates of e_o^o based on			
	NFHS-1 and 2 (1992-98)			SRS (1993-97)
	Mean	95 % Confidence Interval		Mean
		LCI	UCI	
India	**62.4**	**61.8**	**63.0**	**61.1**
North	**67.2**	**65.4**	**69.0**	
Haryana	65.9	61.9	69.8	64.1
Himachal Pradesh	65.7	62.7	68.7	65.1
Jammu	66.4	62.3	70.5	
New Delhi	67.6	62.0	73.2	
Punjab	69.3	64.8	73.9	67.7
Central	**60.2**	**59.1**	**61.2**	
Madhya Pradesh	60.3	58.3	62.4	55.5
Rajasthan	62.5	60.3	64.6	60.0
Uttar Pradesh	59.3	57.8	60.9	57.6
East	**59.9**	**58.6**	**61.3**	
Bihar	59.2	56.6	61.8	59.6
Orissa	57.4	55.5	59.4	57.2
West Bengal	62.6	60.5	64.8	62.8
Northeast	**60.3**	**58.8**	**61.7**	
Assam	58.2	56.0	60.4	56.7
Other North Eastern States	64.0	61.4	66.6	
West	**64.7**	**63.0**	**66.3**	
Goa	68.4	63.3	73.5	
Gujarat	63.5	60.7	66.3	61.9
Maharashtra	64.8	62.4	67.3	65.5
South	**64.7**	**63.4**	**66.1**	
Andhra Pradesh	61.9	59.6	64.1	62.4
Karnataka	65.3	62.4	68.2	63.3
Kerala	73.2	69.3	77.1	73.3
Tamil Nadu	63.3	60.4	66.1	64.1

* Mid-Year

Source: (1) Author's estimates

(2) SRS data based abridged life tables constructed by Registrar General. 2000. New Delhi, India

Table 7.1 Continued .....

Male

State	Estimates of e_0^0 based on			
	NFHS-1 and 2 (1992-98)			SRS (1993-97)
	Mean	95 % Confidence Interval		Mean
		LCI	UCI	
India	**61.6**	**60.8**	**62.3**	**60.4**
North	**65.9**	**63.6**	**68.2**	
Haryana	65.2	60.6	69.8	63.7
Himachal Pradesh	63.1	59.4	66.9	64.6
Jammu	65.4	60.2	70.6	
New Delhi	65.5	58.7	72.2	
Punjab	68.1	62.6	73.6	66.7
Central	**59.6**	**58.3**	**60.9**	
Madhya Pradesh	59.9	57.6	62.3	55.6
Rajasthan	62.0	59.3	64.7	59.1
Uttar Pradesh	58.7	56.8	60.6	58.1
East	**59.6**	**58.0**	**61.3**	
Bihar	59.7	56.2	63.2	60.4
Orissa	56.4	53.9	58.9	57.1
West Bengal	61.8	59.3	64.3	62.2
Northeast	**59.6**	**57.7**	**61.4**	
Assam	58.1	55.2	61.0	56.6
Other North Eastern States	61.8	58.8	64.7	
West	**62.9**	**61.1**	**64.8**	
Goa	64.6	57.8	71.4	
Gujarat	62.1	58.6	65.6	60.9
Maharashtra	63.0	60.4	65.7	64.1
South	**62.9**	**61.2**	**64.6**	
Andhra Pradesh	61.5	58.2	64.8	61.2
Karnataka	63.5	59.7	67.3	61.6
Kerala	69.7	65.5	73.9	70.4
Tamil Nadu	61.0	58.0	64.1	63.2

Table 7.1 Continued .....

Female

State	Estimates of e_0^0 based on			
	NFHS-1 and 2 (1992-98)			SRS (1993-97)
	Mean	95 % Confidence Interval		Mean
		LCI	UCI	
India	**63.3**	**62.4**	**64.3**	61.8
North	**68.2**	**65.1**	**71.3**	
Haryana	66.8	59.1	74.5	64.6
Himachal Pradesh	67.9	62.6	73.1	65.2
Jammu	67.3	60.5	74.1	
New Delhi	69.6	60.7	78.6	
Punjab	69.9	62.1	77.7	68.8
Central	**60.7**	**58.8**	**62.5**	
Madhya Pradesh	60.8	57.0	64.5	55.2
Rajasthan	62.9	59.5	66.3	60.1
Uttar Pradesh	60.0	57.4	62.6	56.9
East	**60.0**	**57.7**	**62.4**	
Bihar	58.6	54.8	62.4	58.4
Orissa	58.3	55.2	61.4	57.0
West Bengal	63.1	59.5	66.8	63.6
Northeast	**61.4**	**58.5**	**64.2**	
Assam	58.5	54.1	63.0	57.1
Other North Eastern States	66.3	61.7	70.3	
West	**66.1**	**63.3**	**68.9**	
Goa	71.7	64.5	78.8	
Gujarat	65.1	60.5	69.8	62.9
Maharashtra	66.4	61.9	70.8	66.6
South	**66.2**	**64.1**	**68.3**	
Andhra Pradesh	62.1	59.0	65.2	63.5
Karnataka	67.0	62.5	71.5	64.9
Kerala	75.2	68.5	82.0	75.9
Tamil Nadu	65.5	60.3	70.8	65.1

be noted that the period for SRS estimates (1993-97) more or less matches with that of the NFHS (1992-98), mid-year for both the periods being 1995. It is evident from Table 7.1 that NFHS based life table estimates match well with that based on SRS for males, females and total in case of majority of states (except Madhya Pradesh) as well as for the country as a whole.

In fact, SRS estimates are within 95 percent confidence interval of NFHS based estimates for all the states for which SRS life tables are available. Uttar Pradesh (in case of females) and Madhya Pradesh (in case of both males and females) are the only two states where SRS e_o^o are much lower than that based on NFHS data. In fact, SRS estimates appear to be slightly lower in majority of the states as well as in the country as a whole. For example, at the all-India level, a life expectation at birth (e_o^o) of 61.6 years for males, 63.3 years for females and 62.4 years for both sexes is noted from NFHS based data (1992-98), while it is 60.4 years for males, 61.8 years for females and 61.1 years for both sexes as per SRS estimates. Similarly, at the state level, NFHS based e_o^o for certain states like Kerala, Andhra Pradesh, West Bengal, Himachal Pradesh and Bihar almost matches with that based on SRS, while the e_o^o based on NFHS data is slightly higher than the SRS estimates in all other states, except Tamil Nadu and Maharashtra where the value of e_o^o is marginally lower in case of NFHS data. Thus the results of NFHS data based life tables constructed for the period 1992-98 are more or less consistent with that of the SRS based life tables during the corresponding period, for majority of the states as well as for the country as a whole. The marginally higher estimates of life expectation at different ages based on NFHS data, compared to that based on SRS data, can mainly be attributed to the fact that level of infant and child mortality is slightly lower in the NFHS data than that in the SRS data for the same period (IIPS & ORC

Macro, 2000). While it is difficult to establish the correctness of data of the two sources, the current life tables constructed based on two rounds of NFHS data, by the method developed in the present study, reveal consistent results, not only at the state and national level, but also for specific regions and communities, which even SRS, with such a large sample base, is unable to provide information for the study of community specific mortality pattern. Therefore, such national or state level surveys, like NFHS, if repeated periodically, can become an alternative reliable source (apart from SRS) of studying the mortality pattern in the country, although this does not undermine the role of SRS. In fact, in view of its large sample base and repeat of the survey at regular intervals, SRS is a major source of mortality and fertility data in the country and has also been used here to study the trend in mortality and its likely pattern in the future.