LIFE TABLES FOR INDIA IN THE 1990s

Report Prepared for the World Health Organization Based on an Evaluation of Mortality Data from the Sample Registration System

P. N. Mari Bhat

With the Assistance of

A. J. Francis Zavier

Population Research Centre
Institute of Economic Growth
Delhi – 110 007

June 2000

LIFE TABLES FOR INDIA IN THE 1990s

Report Prepared for the World Health Organization Based on an Evaluation of Mortality Data from the Sample Registration System

P. N. Mari Bhat

With the Assistance of

A. J. Francis Zavier

Population Research Centre
Institute of Economic Growth
Delhi – 110 007

June 2000

FIGURES

Introduction

The practice of constructing life tables for population of India dates back to the late nineteenth century. Their construction, however, has proved to be an arduous task because of the absence of accurate vital statistics. Sir George Hardy, who prepared the life tables for the last three decades of the nineteenth century, pioneered the use of population age distributions from the censuses for their computation. This practice continued for a full century. But with the emergence the Sample Registration System in the 1970s as a dependable source for vital statistics, the official Indian life tables began to be constructed on the basis of this new source. Also, a 5-year time period began to be adopted for the construction of life tables, instead of the 10-year period employed earlier. However, the official life tables are neither adjusted for the possible omission of deaths in the SRS, nor checked against the independent evidence provided by the population censuses.

This report presents life tables for India and its major states for 1981-91 and 1990-97, after subjecting mortality data from the Sample Registration System to a thorough check. The reliability of data on mortality levels at ages less than 5 years has been checked by comparing the estimates with information available from other sources. The completeness of reported deaths of ages 5 and over has been ascertained by applying an indirect procedure developed by Bennett and Horiuchi (1984) that is applicable even to populations under destabilisation. To suit data circumstances in India, this procedure has been applied somewhat differently, and several tests have been performed before choosing the final estimates of death completeness. As a by-product, the modified procedure also yields an estimate of the birth completeness that is consistent with the estimate of death completeness. The evaluation of the SRS data has been done for two periods, 1981-90 and 1990-97. Although the latter period is of immediate concern, the analysis has also been made for the earlier period because independent information from the population censuses was available for crosschecking. As such a check is not yet possible for the latter period, we offer the life tables for 1990-97 not as a final product, but as the best that can be done at present.

Sample Registration System

As the civil registration system in India was grossly deficient, the Office of the Registrar General introduced a pilot scheme to record births and deaths in some selected states in 1964-65. This was expanded into a full-scale system in 1969-70. Since then, the Sample Registration System has become an authoritative source for the estimates of fertility and mortality levels for the country and its major states.

Based on the principles of the dual-record system, the SRS involves both a continuous registration in a nationally representative sample of villages and urban blocks, and an independent survey every six months to net missing events and update demographic particulars of the sample population. The events recorded in the survey and the continuous register are matched every six months on characteristics such as house number, name, sex, month of occurrence, and all unmatched or partially matched events are verified in the field to arrive at a final count of births and deaths that occurred in the sample area.

In rural areas, the sample unit is a village, or segment of a village if the population is 2,000 or more. In urban areas, the sample unit is a census enumeration block with a population of about 750 at the time of selection. During much of the 1990s, the SRS was functioning in

Table 1. Estimates of Undercount of Births and Deaths in the Sample Registration System from Intensive Surveys, and Estimates of Net Migration Rate Derived from the 1991 Census Data

State	Omission rate per 100				Net migration rate	
	Births		Deaths		Per 100, 1981-91 *	
	1981	1985	1981	1985	Males	Females
Andhra Pradesh	5.6	0.3	0.5	0.0	-0.01	0.00
Assam	8.3	3.7	4.6	3.7	0.01	-0.01
Bihar	N/A	0.0	N/A	0.0	-0.15	-0.08
Gujarat	1.1	0.3	2.4	2.7	0.13	0.08
Haryana	1.2	1.1	2.3	2.2	0.11	0.07
Himachal Pradesh	N/A	1.3	N/A	1.9	-0.02	-0.08
Jammu & Kashmir	N/A	1.5	N/A	1.0	N/A	N/A
Karnataka	10.0	2.3	6.1	4.3	0.04	0.01
Kerala	1.9	0.4	2.3	1.5	-0.30	-0.20
Madhya Pradesh	0.2	0.2	2.0	0.0	0.06	0.06
Maharashtra	2.4	0.0	4.4	1.2	0.15	0.09
Orissa	N/A	1.0	N/A	2.1	-0.04	-0.01
Punjab	1.9	N/A	1.4	N/A	0.03	0.00
Rajasthan	4.7	2.5	9.4	2.2	-0.05	-0.03
Tamil Nadu	1.9	0.8	1.4	0.0	-0.08	-0.06
Uttar Pradesh	2.3	2.8	4.9	4.8	-0.16	-0.11
West Bengal	N/A	3.0	N/A	3.0	0.03	0.01
All India	3.1	1.8	3.3	2.5	0.00	0.00

Source: India, Registrar General (1983; 1988), and 1991 Census data diskettes.

* Figures show the net rate of inter-state migration, except in Kerala where a correction has been incorporated for international migration.

N/A – Not available.

4,149 sample units in rural areas and 2,151 units in urban areas, comprising a population of roughly 6 million. To retain the representative character of system and efficiency levels, sample units of the SRS are periodically replaced by using the results of the latest population census. A total replacement of the sample has been effected twice in the past, once during 1982-84, and again during 1993-95.

An important implication of this practice should be kept in mind. When a sample unit is first included in the system, a complete census is taken, which forms the baseline information for the sample population. In the subsequent half-yearly surveys, the household registers prepared during the baseline survey are updated, but to avoid the problem of raising ages of survivors and new-borns in fractions, they are updated only once in a year. Consequently, over time, errors in the age distribution of the population from the baseline survey would shift in a cohort-specific manner. For example, in the year following the baseline survey, the excess

population reported at age 60 years owing to age misstatements would be shifted to 61, after two years to 62, and so on. At younger ages the age information would become almost free of errors because most would have been born after the initiation of the system. But when a new baseline survey is carried out after the replacement of the sample, the typical age errors found in India censuses would reappear.

In the past, there have been some direct attempts to evaluate the completeness of vital events reported in the SRS. In these intensive enquiries, experienced staff of the SRS collected data on vital events in selected sample areas without the knowledge of local enumerators, and the events recorded were matched with those netted in the routine phase. Results of such intensive investigations done in some selected states in early 1970s indicated omission rates ranging from 2-8 percent for births and 0-5 percent for deaths (Bhat, Preston and Dyson, 1984). A more comprehensive investigation done in 1981 suggested an omission rate at the all-India level of 3.1 percent for births and 3.3 percent for deaths (India, Registrar General, 1983). A similar enquiry conducted in 1985 suggested that omission rates have declined to 1.8 percent for births and 2.5 percent for deaths (India, Registrar General, 1988). The state-level estimates of underenumeration of vital events from both the surveys are shown in Table 1. They show that in early 1980s, underenumertaion levels were relatively high in Assam, Karnataka, Rajasthan and Uttar Pradesh. Unfortunately, no such direct attempt has been made to evaluate the SRS completeness after 1985.

Evaluation of Mortality Rates at Ages Under Five Years

The accuracy of mortality rates from the SRS for ages under-five years can be checked by comparing them with estimates from other sources. The two main alternative sources for the levels of infant and child mortality are population censuses and the National Family Health Survey. From the questions on children ever-born and children surviving put to women in the Census of 1981 and 1991, estimates of child mortality can be derived using the 'Brass method' (United Nations, 1983). From the data on birth histories of women collected in the National Family Heath surveys of 1992-93 and 1998-99, estimates of infant and child mortality levels have been derived for major Indian states (International Institute for Population Sciences, 1995 and 2000).

Table 2 shows the estimates of under-5 mortality rate from the three sources for India and its 16 major states, roughly for the periods 1985-86, 1990-91 and 1996. The estimates of under-5 mortality rates from the SRS were derived from the published estimates of death rate of the age interval 0-4 years (${}_5M_0$) and infant mortality rate (${}_1q_0$). The following approximate relationship has been made use of in its computation:

$$ {}_5q_0 = \frac{{}_5M_0(10 - 4\,{}_1q_0)}{2 + 5.5\,{}_5M_0} \qquad (1) $$

The above formula assumes that infant deaths survive on an average 3 months, and children dying in the age interval 1-4 years live on an average 1.25 years after completing their first birthday. The estimates from the SRS shown in Table 2 are 3-year averages centred on 1986, 1991 and 1996.

Table 2. Comparison of Estimates of Under-5 Mortality Rate from Sample Registration System with Estimates from National Family Health Survey and 1991 Population Census for Major Indian States

State	Period: c. 1985-86			Period: c. 1990-91			Period: c. 1996	
	SRS	1991 Census	NFHS, 1992-93	SRS	NFHS, 1992-93	NFHS, 1998-99	SRS @	NFHS, 1998-99
Andhra Pradesh	127	97	101	101	91	97	83	85
Assam	171	116	145	140	142	71	114	90
Bihar	186	94	145	131	128	115	124	105
Gujarat	161	88	104	120	104	97	94	85
Haryana	132	71	117	110	99	81	104	77
Himachal Pradesh	120	95	102	90	69	54	79	42
Karnataka	116	80	116	106	87	95	80	69
Kerala	45	47	48	26	32	33	19	19
Madhya Pradesh	212	151	155	184	130	151	145	138
Maharashtra	109	72	82	83	70	81	63	58
Orissa	192	150	142	160	131	127	134	104
Punjab	108	68	70	89	68	68	70	72
Rajasthan	191	111	112	163	103	135	134	115
Tamil Nadu	121	69	103	84	87	67	64	64
Uttar Pradesh	226	124	182	170	141	141	138	123
West Bengal	126	89	115	95	99	74	83	68
All India	164	97	128	127	109	N/A	108	N/A

Note: The estimates from the SRS are derived from the reported death rate of the age group 0-4 years and infant mortality rate. The estimates from the1991 Census are derived from the data on children-ever born and children surviving. The estimates from the National Family Health Surveys are derived from data on birth histories; they refer either to 0-4 or 5-9 years before the survey.

N/A: Not available yet.

Source: IIPS (1995; 2000), and author's estimates from census and SRS data.

The under-5 mortality rates of the 1991 Census were derived by making use of 'South Model' multipliers (United Nations 1983). They are 'graduated' estimates derived from the responses of women aged 20-24 and 25-29 years, using the South Model life tables. Data for older women from the census were discarded as they appeared to be severely distorted from recall errors. The estimates from the NFHS were derived from women's reports of dates of birth and dates of death of children born to them. The estimates shown here are for the time periods 0-4 and 5-9 years before the two surveys.

The comparisons presented in Table 2 clearly show that, except for Kerala, estimates of under-5 mortality rate from the SRS are consistently higher than those from other sources. For

the mid-1980s, the SRS-based estimate for all India is 70 percent higher than the census-based estimate and 28 percent higher than that of the NFHS-1. The census-based estimate is for a slightly more recent date (1987-88), but this cannot be the main reason for this source suggesting such low estimates. For the beginning of 1990s, the SRS based-estimate for all-India is 16 percent higher than the estimate from the NFHS-1. Estimates of infant and child mortality from the NFHS-2 for all-India are not yet available, but the published figures from the survey for major states suggest that they would at least be 10 percent higher than the SRS estimates for the mid 1990s. For the states of Kerala, Tamil Nadu, Andhra Pradesh, Punjab, Madhya Pradesh and Maharashtra estimates of under-5 mortality from the SRS and NFHS-2 are fairly close, but for all other states, the estimates from the former source are significantly higher.

It is thus clear that the SRS does not significantly underestimate mortality levels at ages less than five years in any state. The indirect estimates from the 1991 Census data - even when based on responses of younger women - appear to significantly understate the actual levels of child mortality. The birth-history-based estimates from the NFHS too have sizeable downward biases, especially estimates for periods more than five years before the survey.

Evaluation of Adult Mortality Levels through Indirect Methods

Demographers have proposed several indirect methods to evaluate the completeness of death reporting in a survey or a registration system (see United Nations 1982). They typically involve checking the consistency of reported deaths at various ages with the age structure and growth rate of population. Theoretically most advanced among such methods is the one proposed by Bennett and Horiuchi (1984). Their method is an improvement over the method suggested by Preston and Coale based on the stable population theory (see Preston et. al. 1980; United Nations, 1983). As the new methodology is applicable to instances wherein fertility and mortality levels are changing, it has been used to check the completeness of vital events reported in the SRS.

The rationale of the method rests on the observation that number of persons at age x in any particular year ($N(x)$) should equal the total number of deaths that would occur to this cohort during the rest of their lives, and the latter could be computed from the current deaths ($D(a)$) and growth rates ($r(a)$) at ages above x. Thus the ratio of population at age x and its expected value computed from recorded deaths above age x ($N^*(x)$) would suggest the extent of completeness of deaths above age x.

Mathematically, Bennett and Horiuchi have shown that the following relationship holds for any closed population:

$$N(x) = \int_0^\infty d(a)\, e^{\int_x^a r(u)du}\, da \qquad (2)$$

This relationship is used to compute the expectation population from the registered deaths and population growth rates by age. Then the completeness of recorded deaths at ages above x can be estimated as

$$C(x) = \frac{N^*(x)}{N(x)} \qquad (3)$$

As input data are usually available in five-year age intervals, in implementing the method, several approximations are suggested. The expected population in 5-year age intervals is computed by averaging estimates derived for the beginning and the end of the age interval. Bennett and Horiuchi have suggested a correction to minimise the effects of the linearity assumption, which however is important only for the older age groups. Further, to minimise the effect of age errors in the input data, cumulated populations above a given age are generally used in computing the death completeness estimates. A special problem is encountered while implementing the equation to the open ended, highest age interval. Its discussion is postponed to a later stage.

Although theoretically it is possible to apply the method to ascertain completeness of deaths at all ages, including child deaths, normally application of the method is limited to ages 5 and above. Partly this is because child deaths may have a different level of completeness than adult deaths. But more importantly, it can be shown that completeness estimate for all deaths is far more sensitive to data errors than a similar estimate derived for deaths at ages 5 and above (see Bennett and Horiuchi, 1984).

Spurred by the deficiencies in the data provided by the SRS, we have deviated somewhat from the standard application of the method. These modifications are discussed below:

(i) *Computation of Age-Specific Growth Rates*:

The annual publications from the SRS include (a) the percentage distribution of mid year population by sex in conventional 5-year age intervals, (b) age-specific death rates and infant mortality rate by sex, and (c) estimates of crude birth and death rates for the year. It is to be noted that as data on population counts by age-sex are not available, age-specific growth rates needed for the application of Bennett-Horiuchi method cannot be obtained in the normal manner. However, equation (2) can be modified as follows to suit our data circumstances:

$$N(x) = \int_x^\infty d(a)\, e^{r(a-x)}\, e^{\int_x^a (r(u)-r)du}\, da \qquad (4)$$

where r is the rate of natural increase of the total population. The exponent, $r(u)$-r, in the above equation is the age-specific growth difference, which can readily be computed from the percentage distribution of the population. In fact, the new form for computing the expected population from the age-distribution of deaths is more convenient in experimenting with different values of r.

Normally, the growth rate of population for any time interval is computed from the population enumerated at the beginning and end of the interval. However, as annual data series is available from the SRS, it is advantageous to use the regression method in the computation of growth rate (or differential growth rate by age):

$$ln N_t = a + bt \qquad (5)$$

where N_t is the population (or percentage of the population) at time t. The subscript denoting age has been dropped for ease of exposition. The two coefficients of the equation, a and b, can be estimated through the method of least squares using annual data for any given time period. The slope coefficient, b, would give the estimate of the exponential growth rate (or growth difference at a given age if percentage distribution of population is used).

A noted earlier, a problem unique to the SRS data is the age-progression of errors and an abrupt halt to this process brought about by the replacement of sample units. If proportionate errors in population counts remain stationary at every age, growth rates computed from the data would be free of errors. The shifting pattern of errors in the SRS cause problems for growth rate estimation, particularly if sample units were replaced during the time interval considered for the analysis. It was observed that the growth rates computed from the SRS data for the period 1981-90 are not severely distorted from the age-progression of errors. But for 1990-97, estimated growth rate at older ages in several states showed wide fluctuations, possibly because of the sample replacement effected during 1993-95. Hence for estimating the growth rates for this period through the regression method, we included a dummy variable to capture the effect of the change in the sample. Thus growth rate difference was computed using the regression equation

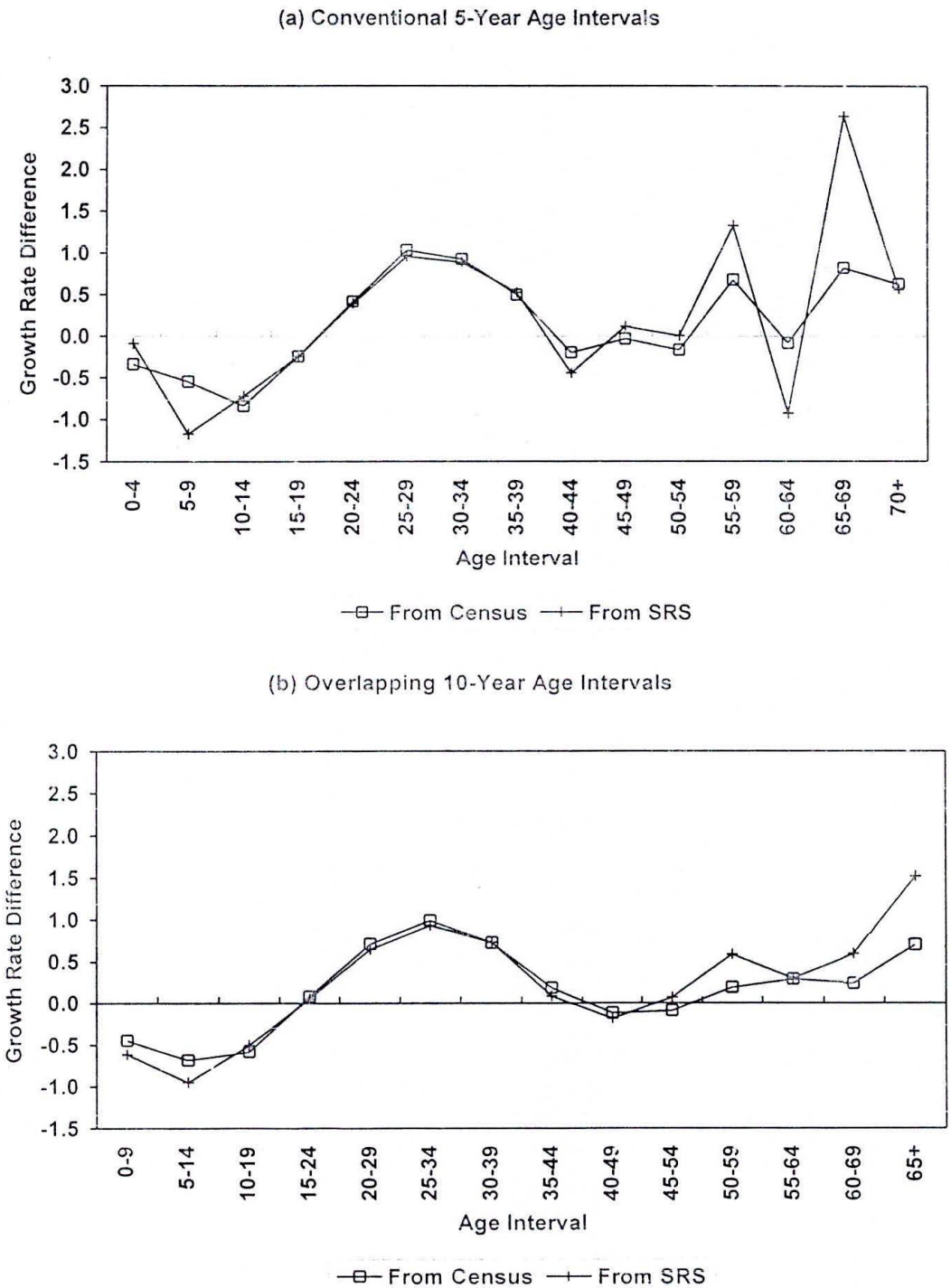
$$ln N_t = a + bt + cD \qquad (6)$$

where the dummy variable D is assigned a value of 1 when the data are from the new sample. In many instances we found this dummy to be statistically significant and the estimated growth difference (i.e., the value of b) to be substantially different from the one estimated using without the dummy for the sample switch.

(ii) *Graduation of Age-Specific Growth Rates*:

Normally in implementing the 'variable-r' methods, growth rates are computed for the conventional 5-year age groups, 0-4, 5-9, 10-14, etc. However, extensive applications of these methods to Indian data have shown that computed growth rates for higher age intervals fluctuate a great deal because of extreme unreliability of age reports on elderly population. Except perhaps for children, age data in India appear to be good enough only to group persons in 10-year age intervals. We have observed that far smoother age patterns in the growth rate are indicated when overlapping ten-year age intervals, 0-9, 5-14, 10-19, 15-24, etc., are adopted. For example, Figure 1 shows the growth differentials by age (i.e., growth rate at a given age minus the growth rate of total population) for the female population of India during 1981-90 computed from the SRS data and the decennial censuses. From both the sources, growth differentials are shown for the conventional 5-year age intervals as well as for the overlapping 10-year age intervals. It is clear from the graphs that the growth rates for the10-year age intervals show far smoother trend at higher ages compared to the growth rates for 5-year age intervals. This is particularly so for growth rates computed from the SRS data, as the cohort drift in age errors have a drastic effect on growth rates for 5-year age intervals compared to those of 10-year age intervals.

Figure 1. Growth Differentials by Conventional 5-Year Age Intervals and by 10-Year Age Intervals from Sample Registration System and Population Censuses, Indian Females, 1981-91



It may be noted in passing that the census and SRS data have suggested very similar age patterns in the growth rates during 1981-90. Both sources indicate that population at ages under 15 grew at a pace less than the total population, while population at ages 15-45 grew at higher rate. While the population in the age-segment 45-54 years grew at about the same rate as the total population, population at ages above 55 years increased at a more rapid pace. As Horiuchi and Preston (1988) have shown, encoded in these differential growth rates is the recent demographic history of the population. The only notable difference between the two data sources is that the SRS data suggest somewhat higher growth rate at older ages than the census. This is consistent with the suggested higher female underenumeration at older ages in the 1991 census, compared with that of the earlier census (see Bhat, 1998).

It is necessary here to suggest a way of implementing the method of Bennett and Horiuchi using the growth rates for the overlapping 10-year age intervals. This can simply be done by deriving the estimates of growth rates for the 5-year age intervals from those of the 10-year age intervals. By noting that a conventional 5-year age interval would be a part of two adjacent, overlapping 10-year age intervals, the following approximate relations are indicated:

$$ {}_5r_a \approx ({}_{10}r_{a-5} + {}_{10}r_a)/2, \qquad a = 5, 10, \ldots A-10 $$

$$ {}_5r_{A-5} \approx ({}_{10}r_{A-10} + r_{A-5+})/2 $$

$$ r_{A+} \approx r_{A-5+} $$

where A is the lower limit of the open-ended, highest age interval. As a way of reducing the effect of age misstatements, these 'graduated' estimates of growth-rates for the 5-year age intervals were used in the application of the method proposed by Bennett and Horiuchi.

(iii) *Adjustment to Migration*

Theoretically, the Bennett-Horiuchi method is applicable only to a population closed to migration. While population of India as a whole can be considered as meeting this requirement, several state populations are affected be sizeable flows of migrants. A rough correction can be made for migration in the method, by adjusting the age-specific growth rates for migration. To simplify computations, a standard pattern of age- and sex-specific migration rates was employed. The standard pattern was derived from the age-sex distribution of migrants who reported a duration of residence of 0-9 years in 1991. By dividing the migrants by the exposed population during 1981-90, the migration rate was computed for each age group for males and females. The standard pattern was expressed as the age-schedule of relative risks, i.e., as a ratio of the rate of migration at an age group to the rate of migration of the total population. Table 3 shows the standard age-pattern of migration risk for males and females. By simply multiplying the standard values by the estimated migration rate for the total population of any state, the age-specific migration rates required for correcting the growth rate schedule were derived. For the total population, it was possible to compute the migration rates for 1981-90 from the published cross tabulations of the 1991 census data for all the major states. International migration was assumed to be negligible, except for Kerala (see Table 1). For 1990-97, migration rates estimated for 1981-90 were assumed to be applicable.

Table 3. Standard Age-Sex Pattern of Relative Migration Risks

In conventional 5-year intervals			In overlapping 10-year intervals		
Age interval	Males	Females	Age interval	Males	Females
0-4	0.531	0.430	0-9	0.633	0.504
5-9	0.734	0.578	5-14	0.687	0.524
10-14	0.639	0.469	10-19	0.838	0.836
15-19	1.038	1.204	15-24	1.430	2.127
20-24	1.822	3.050	20-29	1.896	2.850
25-29	1.970	2.650	25-34	1.823	1.907
30-34	1.676	1.165	30-39	1.499	0.926
35-39	1.321	0.688	35-44	1.150	0.578
40-44	0.979	0.469	40-49	0.878	0.424
45-49	0.776	0.378	45-54	0.693	0.360
50-54	0.610	0.342	50-59	0.572	0.340
55-59	0.534	0.338	55-64	0.488	0.330
60-64	0.441	0.323	6069	0.444	0.332
65-69	0.446	0.342	65 +	0.430	0.377
70+	0.425	0.388			
Total	1.000	1.000	Total	1.000	1.000

(iv) *Estimation for the Open Interval*

In the Bennett-Horiuchi method, estimation begins from the highest age interval. As this interval is open-ended it posses special problems. To compute the expected population at the lower bound of this interval from registered deaths of the interval, a preliminary estimate of the life expectancy at this age is required. Several proposals have been made to arrive at this preliminary estimate (see Bennett and Horiuchi, 1986; United Nations, 1983), which depend rather too heavily on the model age patterns of mortality. In our applications, the preliminary estimate of life expectancy at the lower bound of the open interval was derived as a function of the inverse of the recorded death rate for the open interval, after adjusting it for the non-stationarity of population in this age segment (see Horiuchi and Coale, 1982). Although this amounts to assuming initially that the SRS death rate for this age interval is free of error, it does not seriously bias the final results. A ten-percent error in the preliminary life expectancy value was found to cause only about one-percent error in the final completeness estimate.

(v) *Choosing the Final Estimate of Completeness*

The method provides a series of estimates of death completeness that vary with age. While this may be because deaths at different ages have different levels of completeness. But a far more important reason for this variation is the errors in the input data. This makes the task of

choosing the final estimate of death completeness difficult. To aid decision making, we performed three tests:

(a) Slope-test: Errors in the observed/assumed growth rate of total population and age misstatements can severally alter the completeness estimates at different ages. Both underestimation of the growth rate of population and overstatement of age at death can raise the completeness estimates at older ages relative to those for younger ages. Overestimation of growth rate and downward displacement of age at death would cause the estimates of death completeness fall with age. Thus it is useful to check the age-trajectory of completeness estimates before making the final choice. If this trajectory has a non-zero slope (apart from the zigzag pattern), one can experiment with different values of the growth rate of total population such that completeness estimates would fall on a horizontal line.

(b) Birth-rate test: Another useful check that can be made is the plausibility of the implied level of crude birth rate. By correcting the adult deaths using the estimated completeness level, and appropriately adjusting the deaths at ages under 5, an estimate of crude birth rate can be made by adding the estimate of crude death rate to the growth rate of total population. This estimate of crude birth rate can be checked against an estimate derived from the age structure of population using the 'variable-r' relations (Preston and Coale, 1982). For example, the latter estimate of the crude birth rate is derived from the proportion of population under 15 years as

$$b = \frac{{}_5c_0 e^{2.5 {}_5r_0}}{15 {}_5p_0} + \frac{{}_5c_5 e^{5 {}_5r_0 + 2.5 {}_5r_5}}{15 {}_5p_5} + \frac{{}_5c_{10} e^{5 {}_5r_0 + 5 {}_5r_5 + 2.5 {}_5r_{10}}}{15 {}_5p_{10}}$$

where ${}_5c_x$, ${}_5r_x$ and ${}_5p_x$ are, respectively, proportion of population at the age interval x *to* $x+4$, growth rate of population aged x *to* $x+4$, and probability of survival from birth to the age interval x *to* $x+4$. Since the estimate of the birth rate derived from the balancing equation is more sensitive to changes in the growth rate of population than the estimate derived from proportions of the population at childhood ages, it is possible to vary the growth rate of total population such that the two estimates become identical. It is to be noted that this test is not sensitive to the assumed level of completeness of child deaths because the estimates of birth rate from both the methods are affected by about the same degree from the underestimation of child mortality.

(c): Sex-ratio test: Also, when the method is applied to data for both males and females, it also useful to check the sex ratio at birth implied by the estimates of male and female birth rates derived using the balancing equation. If the implied sex ratio at birth is significantly different from 105, the estimate of death completeness for either males or females, or for both, could be erroneous.

Ideally, the finally chosen estimate of death completeness should pass all the above three checks. But in practice, owing to errors in the age data, rarely this is expected to happen. In particular, the growth rate of population indicated by the slope and the birth-rate tests may not be identical. In such cases, the estimate that corresponds to the growth rate of population nearest to the observed growth rate, or the one that passes the sex-ratio test may be accepted.

Table 4. Estimating the Completeness of Death Registration Using Bennett-Horiuchi Method
Sample Registration System, 1981-90: Uttar Pradesh, Females

Age x	Average population in interval x - x+4	Average death rate per 1000 x – x+4	E'xcess growth rate in interval x - x+9	Rate of net migration x - x+9	Adjusted growth rate of population x - x+9	Deaths in age interval x - x+4	Correction factor for non-linearity	Estimated population		Ratio of estimated to Observed population (death completeness)		Adjusted deaths with completeness estimate	
								At age x	In the age interval x - x+4	In interval x - x+4	Cumulated from x to 69	Estimate (a) 0.901	Estimate (b) 0.878
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
0	14.47	56.90	-0.0049	-0.0006	0.0183	0.8236	1.000					0.8236	0.8236
5	13.48	5.55	-0.0010	-0.0006	0.0222	0.0748	1.000	2.642	12.39	0.919	0.903	0.0830	0.0852
10	12.19	2.11	0.0035	-0.0009	0.0271	0.0257	1.000	2.316	10.85	0.890	0.900	0.0285	0.0293
15	9.41	3.02	0.0003	-0.0023	0.0252	0.0284	1.000	2.023	9.43	1.002	0.902	0.0315	0.0324
20	8.82	4.65	0.0058	-0.0031	0.0316	0.0410	1.000	1.748	8.07	0.915	0.882	0.0455	0.0467
25	7.45	4.39	0.0070	-0.0021	0.0318	0.0327	1.000	1.479	6.78	0.910	0.875	0.0363	0.0372
30	6.65	4.62	0.0011	-0.0010	0.0248	0.0307	1.000	1.232	5.68	0.855	0.867	0.0341	0.0349
35	5.64	4.74	-0.0026	-0.0006	0.0207	0.0267	1.000	1.041	4.86	0.862	0.870	0.0296	0.0304
40	5.20	5.58	-0.0037	-0.0005	0.0195	0.0290	1.000	0.904	4.23	0.815	0.872	0.0322	0.0330
45	4.21	7.35	-0.0025	-0.0004	0.0205	0.0309	1.000	0.790	3.69	0.877	0.893	0.0343	0.0352
50	3.67	11.24	-0.0021	-0.0004	0.0209	0.0412	1.000	0.685	3.16	0.862	0.899	0.0457	0.0469
55	2.70	17.10	-0.0020	-0.0004	0.0210	0.0461	1.000	0.579	2.64	0.980	0.920	0.0511	0.0525
60	2.43	29.58	0.0035	-0.0004	0.0265	0.0717	1.003	0.477	2.08	0.859	0.880	0.0796	0.0817
65	1.65	42.07	0.0054	-0.0004	0.0284	0.0695	1.003	0.356	1.50	0.910	0.910	0.0771	0.0792
70	2.04	91.00	0.0054	-0.0004	0.0284	0.1856	1.000	0.245				0.2059	0.2113
Total	99.99	15.60	0.0000	-0.0011	0.0237	0.01558						0.0164	0.0166

Growth rate, unadjusted for migration (%) = 2.26
Net migration rate (%) = -0.11
Rate of natural increase = 2.37
Death completeness, age 0-4 = 1.000
Death completeness, 5+ to 15+ = 0.901 (a)
Death completeness, 35+ to 45+ = 0.878 (b)
Recorded crude death rate = 15.6
Estimated crude death rate = 16.4 (a)
16.6 (b)

Growth-balance CBR = 40.1 (a)
40.3 (b)
Recorded crude birth rate= 39.3
Birth completeness = 0.980 (a)
0.975 (b)

Variable-r birth rate from:	SRS	Census
C(10) =	39.0	40.8
C(15) =	40.1	41.2
Mean =	39.5	41.0

Correction factor for M(70+) = 1.08
Estimated e(70) = 10.2

Estimates of:
e0 = 48.6
e5 = 58.0
q5 = 232
IMR = 140

(vi) *Illustration: Case of Female Population of Uttar Pradesh, 1981-91*

The application of the method to female population of Uttar Pradesh for the period 1981-90 has been illustrated in Table 4. The first column of the table shows the proportion of female population in the conventional five-year intervals, derived by averaging the annual data for 1981 to 1990. Age-specific death rates for 1981-90 in 5-year age intervals are shown in column 2. The third column shows the age-specific growth differentials that were computed from the percentage distribution of population using the regression method. It may be noted that the growth-differentials were computed by regrouping the population data in the overlapping 10-year age intervals. The rates of migration during 1981-90 for the overlapping 10-year age intervals are shown in column 4. The migration data from the 1991 census indicate a net out-migration of females from the state of the order of 0.11 percent per annum. The age-specific rates corresponding to this overall rate were derived from this information using the standard age pattern of migration risk shown in Table 3.

For female population of Uttar Pradesh, the SRS data on crude birth and death rates indicate a rate of natural increase of 2.37 percent during 1981-90 (with an assumed sex ratio at birth of 105 males per females). Table 4 shows further calculations using this rate of natural increase. First, the growth rate of total population is derived as 2.26 percent, by subtracting the estimate of out-migration from the natural increase. This growth rate is added to the estimates of differential growth rate at every age interval, while the net migration rate at the interval is subtracted. The age-specific growth rates so adjusted are shown in column 5. They refer to the overlapping 10-year age intervals. The estimates for the 5-year age intervals are derived by averaging the estimates for the two consecutive 10-year age intervals (step not shown). The age structure of deaths is derived from the SRS data by multiplying the age-specific death rates by proportion of population in the corresponding age intervals (column 6). From the adjusted age-specific growth rates and the age structure of deaths, the expected population at each age interval is computed, as indicated by Bennett and Horiuchi. However, the expected population at age 70 is computed using a preliminary estimate of life expectancy at age 70. This estimate is computed as the inverse of the death rate at ages above 70. Before this computation is made, however, the recorded death rate of 91 per 1000 for this age interval was adjusted for the non-stationarity of the interval using the following equation suggested by Horiuchi and Coale (1982):

$$m_{70+} = M_{70+} e^{0.0951 r_{70+} M_{70+}^{-1.4}}$$

where M_{70+} is the observed death rate at ages 70 and above.

Column 8 of Table 4 shows the estimates of the expected population at exact ages 70, 65, 60 and so on, and column 9 shows the expected population in 5-year age intervals. The latter involve a correction for linearity, which however turns out be of minor consequence (as the correction factors are not significantly different from unity). Next, the ratio of the expected population to the observed population (shown in column 1) is computed, both for the population in conventional 5-year intervals, and for the population above an age (cumulated up to the age 70 only). These ratios shown in columns 10 and 11 give the age-specific estimates of death completeness. Owing to age-misreporting, the ratios in 5-year intervals are severally distorted, hence attention may be focused on the ratios derived from the cumulated populations.

Figure 2. Plots of ratios of estimated to reported cumulated population under different growth-rate variants, Uttar Pradesh, Females, 1981-90

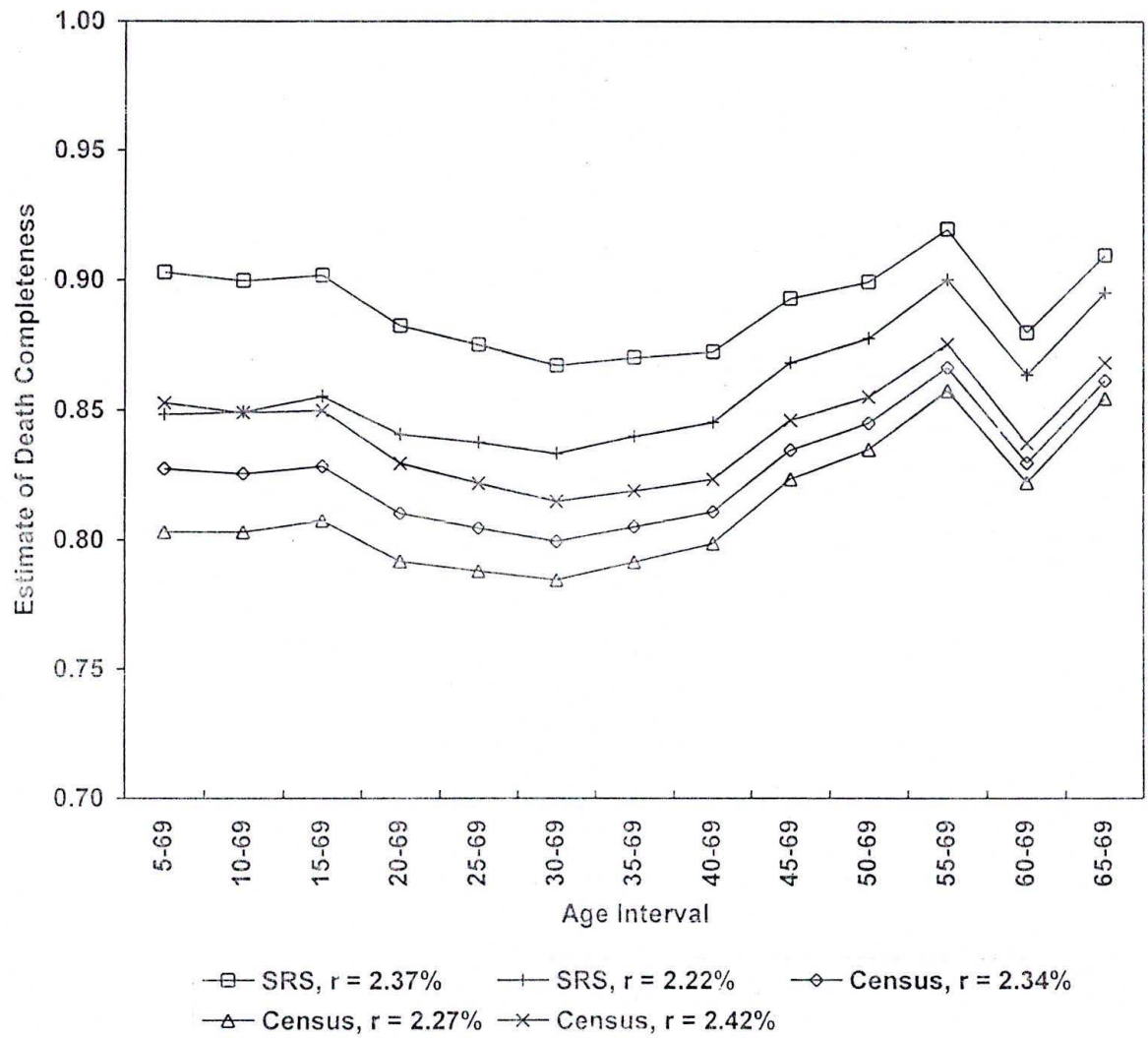


Figure 2 shows the plot of the estimates of death completeness by age that were derived from the expected and the observed ogives of population. Although the plotted line is almost flat, the completeness estimates show a tendency to fall between ages 15 and 30, and rise at older ages. Such a pattern may be arising from the transfer of some deaths to older ages owing to age misreporting. To measure the slope of the line, we compare the average completeness estimates for the age range 5-15 and 35-45 years. These two age ranges are chosen because they seem to be relatively unaffected by age misreporting. The estimated death completeness at ages 5-15 (0.90) is slightly higher than the estimate of completeness at ages 35-45 (0.88), indicating

that the estimate of the rate of natural increase employed in the calculation (2.37 percent) could be too high. Experimentation showed that a rate of natural increase of 2.22 percent would make the estimate of the death completeness at the two age ranges identical, but its new value would be 0.85.

An alternative set of estimates is derived through the consistency of birth-rate estimates. By adjusting the recorded death rates at ages above 5 years using the estimate of death completeness, and by assuming that death rates of under age 5 do not require any correction, an estimate of crude death rate is derived (see cols. 12 and 13). The estimates of crude birth rate corresponding to the estimates of crude death rate are then computed by adding the rate of natural increase. Using the proportions of population at ages under 10 and under 15 years, two alternate estimates of the birth rate are also derived using the variable-r relations. Corresponding to the estimates of death completeness at ages 5-15 and 35-44, the estimates of birth rate derived from the balancing equation are 40.1 and 40.3 per 1000, respectively. On the other hand, proportions of population under age 10 and under age 15 indicate, respectively, a birth rate level of 39.3 and 40.1 for 1981-90. (Table 5 shows the estimates of the birth rate derived from age distributions for 1981-90 from the SRS, as well as from the 1981 and 1991 Censuses; however, as estimates of death completeness were computed from the age distributions of the SRS, for the sake of consistency, the estimates of birth rate from this source alone are being used). The input value of the rate of natural increase can be varied such that estimate of birth rate from the two methods are identical. As we have two sets of estimates from each method, we suggest, in the case of females, equating the estimate of the birth rate derived from death completeness estimate at ages 5-15 with the birth rate derived from the proportion of population under age 15. (In the case of males, we suggest equating the former with the mean of the estimates derived from proportions of population under age 10 and under age 15. Such a change in the procedure for the two sexes is generally found to give a reasonable estimate of the sex ratio at birth with the SRS data). But in the case of female population of Uttar Pradesh as the two estimates are equal (40.1) when the SRS-based estimate of rate of natural increase is used in the calculations, no further iterations with the growth rate values is required.

The last two decennial censuses have recorded a growth rate of 2.23 percent for the female population of Uttar Pradesh during 1981-90. When adjusted for migration it implies a rate of natural increase very close to that recorded in the SRS (2.34 versus 2.37 percent). But patterns of growth by age suggested by the census data were somewhat different from that of the SRS. To check what difference it makes to our results, the procedure was repeated using the census data on growth differentials by age. (Needless to say, all other input data were from the SRS). With the recorded value of 2.34 percent as the rate of natural increase, the estimate of death completeness was 0.83 at ages 5-15, and 0.82 from ages 35-45. The use of 2.27 percent as the rate of natural increase made the two completeness estimates equal at 0.81. However, in order for the estimates of the birth rate from the two methods to be equal, the rate of natural increase had to be raised to 2.42 percent, and it implied a completeness level of 0.85 for deaths at ages 5 and over. Table 5 shows the summary of results from these applications of the procedure, and Figure 2 shows the plot of estimates of death completeness by age.

Table 5. Summary of Results from the Application of Modified Bennett-Horiuchi Method to Female Population of Uttar Pradesh, 1981-90

Data source for growth Differential by age	Growth rate variant *	Assumed/ Implied rate of natural Increase (%)	Death completeness derived from data for ages		Estimates CBR from balancing equation		Variable-r estimates of crude birth rate				Implied sex ratio at birth @	Associated birth completeness in the SRS **
							SRS age-sex structure		Census age-sex structure			
			5+ to 15+	35+ to 45+	Ages 5+ to 15+	Ages 35+ to 45+	Ages 0-9	Ages 0-14	Ages 0-9	Ages 0-14		
						Females						
Census	1	2.27	0.805	0.805	40.1	40.1	39.7	40.7	41.5	41.8	105.8	0.98
"	2	2.42	0.851	0.830	41.1	41.3	40.0	41.1	41.8	42.2	108.4	0.96
"	3	2.34	0.827	0.817	40.6	40.7	39.8	40.9	41.7	42.0	107.8	0.97
SRS	4	2.22	0.851	0.851	39.1	39.1	38.7	39.6	40.5	40.7	109.0	1.01
"	5	2.37	0.901	0.878	40.1	40.3	39.0	40.1	40.8	41.2	107.2	0.98
"	6	2.37	0.901	0.878	40.1	40.3	39.0	40.1	40.8	41.2	105.8	0.98
						Males						
Census	1	2.30	0.959	0.960	37.4	37.4	37.8	39.5	38.3	39.6	105.8	0.97
"	2	2.56	1.056	1.010	39.3	39.6	38.3	40.2	38.9	40.4	108.4	0.93
"	3	2.46	1.018	0.991	38.6	38.8	38.1	39.9	38.7	40.1	107.8	0.94
SRS	4	2.27	0.901	0.901	37.6	37.6	37.1	38.6	37.6	38.7	109.0	0.97
"	5	2.31	0.914	0.907	37.9	37.9	37.1	38.7	37.7	38.8	107.2	0.96
"	6	2.24	0.891	0.895	37.4	37.3	37.0	38.5	37.5	38.6	105.8	0.97

* In Variants 1 & 4, the rate of natural increase is estimated using the constraint that the average level of death completeness estimated for ages 5+ to 15+ years should equal to the average level of death completeness estimated for ages 35+ to 45+ years. Variants 2 & 5 use the constraint that the growth-balance crude birth rate corresponding to the average death completeness estimated for ages 5+ to 15+ should equal to the crude birth rate estimate derived from proportion of population ages 0-14 years (as per the SRS) in the case of females, and in the case of males, to the mean of the crude birth rate estimates for ages 0-9 and 0-14 years. In Variant 3, the census-based estimate of natural increase has been directly employed while in Variant 6, the SRS-based rate of natural increase has been used.

@ As implied by the pair of male and female birth rate of estimates of the same variant, both derived from the balancing equation using the estimates of death completeness at ages 5+ to 15+.

** Corresponding to the estimate of death completeness based on the age range 5+ to 15+.

Thus the application of the procedure to data on female population of Uttar Pradesh shows that death completeness at ages above 5 in the SRS may have been of the order of 80 to 90 percent. A more precise indication of the level could come from the sex ratio test. Also shown in Table 5 are the summary of results obtained by applying the procedure to male population of Uttar Pradesh. The estimates of completeness of male adult deaths range from 89 to 106 percent under different growth variants (The estimate of completeness at ages 5-15 years is taken as the final estimate in each case, as it reflects the average level of completeness of all deaths at ages 5 years and over). But when the estimates for male and female population are combined, estimates from only two variants suggest a sex ratio at birth close to 105. They are: (i) the variant that uses the growth differentials by age from the census data, and employs the constraint that death completeness estimates derived for ages 5-15 and 35-44 should be identical, and (ii) the variant that uses the rate of natural increase and growth differentials by age from the SRS. The completeness of adult deaths derived under the first variant is 81 percent for females and 96 percent for males. The second variant that passes the sex ratio test suggests that deaths were 90 percent complete in the case of females and 89 percent in the case of males. The huge sex difference in the completeness levels suggested by the first variant seems implausible; perhaps it is an outcome of higher underenumeration of females in the 1991 census at older ages. Hence we select the completeness estimate of 90 percent for females and 89 percent for males as our best estimates. Incidentally, this pair of estimates of death completeness estimates also suggests that the SRS was underestimating the birth rate by about 2-3 percent, if it could be assumed that the recorded death rates under age 5 did not require any correction.

For the period 1990-97, the procedure is applied in essentially the same manner as described above for the period 1981-90. However, for the 1990s, data from the population censuses are not available to crosscheck the information on age patterns of growth from the SRS. As fresh data on migration are not available, the estimates made for 1981-90 are assumed to be applicable. There are, however, two separate sets of estimates of growth differentials by age from the SRS, one derived using the dummy variable for the period after1993 to remove the effects of sample switch, and the other computed without using this dummy. Both sets are employed in the application to the see their impact on estimates of completeness levels. In each case, there are three variants, one using the recorded rate of natural increase as it is, another that derives this rate by equating the completeness estimates at ages 5-15 and 35-45, and another that equates the estimates of the birth rate from the two methods. The method is applied to data for both males and females, and the implied sex ratio at birth is computed under all the six variants. If more than one variant is found to pass the sex ratio test, the estimates of the variant that suggest minimum correction to the observed rate of natural increase or the one that suggests a completeness level closest to the one estimated for 1981-90 are taken as the best estimates.

Table 6 shows our final estimates of completeness deaths of age 5 and over for India and its major states during 1981-90 and 1990-97. It also shows the completeness level of total deaths computed on the assumption that deaths of under age 5 do not require any correction. Also shown is the level of birth completeness in the SRS that is associated with the estimate of death completeness. At the all-India level, about 10 percent of deaths of males of ages 5 and over and 12 percent of deaths of females of ages 5 and over were being

missed in the SRS during 1981-90. It is further estimated that incompleteness of adult deaths may have increased to 13 percent among males and 14 percent among females during 1990-97. Overall, about 7 percent of deaths of all ages were being missed in the SRS in 1981-90, and this is estimated to have gone up to 9-10 percent during 1990-97. Andhra Pradesh, Tamil Nadu, Punjab, Bihar, Assam and Maharashtra have been identified as the states where underenumeration of deaths was particularly high in the SRS during the 1990s. Among them, estimates for Andhra Pradesh and Tamil Nadu show substantial deterioration in the completeness between 1981-90 and 1990-97.

Table 6. Estimates of Completeness of Adult Deaths Derived from the Application of Bennett-Horiuchi Method, and Associated Estimates of Completeness of Births and Deaths of All Ages in Sample Registration System, 1981-90 and 1990-97

States	Completeness of deaths of age 5 years and over				Associated estimates of completeness *			
	Males		Females		Deaths of all ages		Live births	
	1981-90	1990-97	1981-90	1990-97	1981-90	1990-97	1981-90	1990-97
Andhra Pradesh	0.93	0.74	0.90	0.67	0.94	0.76	0.94	0.88
Assam	0.89	0.88	0.78	0.73	0.89	0.86	0.95	0.99
Bihar	0.85	0.79	0.90	0.79	0.92	0.85	0.97	0.94
Gujarat	0.87	0.91	0.83	0.90	0.91	0.93	1.00	0.98
Haryana	0.83	0.92	0.87	0.89	0.91	0.94	0.98	0.98
Himachal Pradesh	1.00	1.00	0.95	1.00	0.99	1.00	1.00	1.00
Karnataka	0.85	0.97	0.75	0.95	0.86	0.97	0.98	0.99
Kerala	0.95	0.98	0.87	0.92	0.92	0.95	1.00	0.98
Madhya Pradesh	1.00	0.84	1.00	0.84	1.00	0.90	0.98	0.96
Maharashtra	0.84	0.79	0.87	0.88	0.89	0.87	0.97	0.95
Orissa	1.00	0.95	1.00	0.92	1.00	0.96	1.00	0.96
Punjab	0.85	0.82	0.76	0.78	0.86	0.84	0.98	0.95
Rajasthan	0.97	0.91	0.93	0.91	0.98	0.94	0.94	0.98
Tamil Nadu	0.87	0.78	0.80	0.69	0.88	0.77	0.95	0.91
Uttar Pradesh	0.89	0.94	0.90	0.89	0.95	0.95	0.98	0.98
West Bengal	0.88	0.82	0.89	0.94	0.92	0.90	0.92	0.97
India, Total	0.90	0.87	0.88	0.86	0.93	0.91	0.97	0.92
India, State-weighted	0.90	0.86	0.89	0.84	0.93	0.90	0.97	0.96

* On assuming that deaths of ages 0-4 years required no correction.

The estimates of death completeness imply an undercount of three percent in births at the all-India level during 1981-90. In 1990-97, under enumeration of births may have gone up to 4–8 percent. The lower estimate was obtained by weighting the state level estimates of completeness of births, and is consistent with the recorded growth rate of natural increase in the SRS. The upper estimate was obtained by the direct application of the above procedures to all-India data, which indicated a rate of natural increase of 2.1 percent during 1990-97 instead of 1.9 percent recorded by the SRS.

One final comment is in order here. A question naturally arises as to why the SRS.

while significantly underenumerating adult deaths, appears to net most of the infant and child deaths. The answer to this may lie in the fact that extra effort is made in the SRS to enumerate all births to the sample population, by maintaining a record of pregnancies and foetal deaths. There also is the possibility of some stillbirths being missclassified as neonatal deaths in the SRS (see Bhat 1998). As there is no such mechanism to monitor the possibility of adult deaths, they may be getting missed more often.

Construction of Abridged Life Tables

While computing the abridged life tables in five-year age intervals, the recorded death rates at ages 5 years and over were first adjusted for the estimates of death completeness shown in Table 6. They were, however, not subjected to any smoothing. Simulations using age-misstatement matrices suggest that when age at death is recorded on the basis of what was reported when the person was alive - a condition present in SRS - the age schedule of mortality does not get severely distorted by age misreporting, at least up to age 70 (see Bhat 1987). Except for the open interval 70 years and over, the observed age-specific death rates corrected for incompleteness of deaths, were assumed to represent the central death rates of the life tables. The death rate for the age interval 70 + was further adjusted for non–stationarity of the interval as proposed by Horiuchi and Coale (1982). Also, given the quality of data, a simple, linear distribution of deaths with the 5-year age interval was considered as adequate for converting the death rates into probabilities of death in five-year age intervals. Equation 1 was used to estimate the probability of death between birth and age five years from the death rate of ages 0-4 years, and substituting the reported infant mortality rate for the estimate of the probability of dying at infancy.

Thus , at ages 5 and over, the probability of dying between ages x and x+5 was estimated as

$$ {}_5q_x = \frac{10\ {}_5M_x}{2 + 5\ {}_5M_x}, $$

and the probability of dying between age 0 and 5 as

$$ {}_5q_0 = \frac{{}_5M_0(10 - 4\ {}_1q_0)}{2 + 5.5\ {}_5M_0} $$

For estimating the person years lived between ages x and x+5, the values of average age at death implicit in the above conversion formulas were employed:

$$ {}_5L_x = 2.5\ l_x + 2.5\ l_{x+5} \qquad x = 5,10....65, $$

$$ {}_4L_1 = 1.25\ l_1 + 2.75\ l_5, $$

and

$$_1L_0 = 0.25\,l_0 + 0.75\,l_1$$

The life tables were constructed in this manner for 1981-90 and 1990-97 for the 16 major states of India. For India we have also constructed for 1990 to 1997, on the assumption that death completeness levels did not change during the time interval. However, users are cautioned that since SRS samples were changed during 1993-95, this might not have been a sound assumption to make. All the constructed life tables are presented in the Appendix.

Table 7. Adjusted and Unadjusted Estimates of Expectation of Life at Birth and at Age 5 Years, All India and Major States, 1990-97

State	Expectation of life at birth				Expectation of life at age 5			
	From adjusted death rates		From unadjusted death rates		From adjusted death rates		From unadjusted death rates	
	Males	Females	Males	Females	Males	Females	Males	Females
Andhra Pradesh	56.5	58.3	60.4	63.8	57.0	58.5	61.3	64.6
Assam	54.3	51.9	56.0	56.3	57.2	54.4	59.1	59.3
Bihar	56.3	54.7	59.5	58.2	58.1	57.4	61.8	61.4
Gujarat	59.2	62.2	60.4	63.8	60.5	64.6	61.9	66.2
Haryana	61.2	62.0	62.8	63.5	62.8	64.9	64.2	66.6
Himachal Pradesh	62.7	65.6	62.7	65.6	63.1	66.3	63.1	66.3
Karnataka	60.9	64.5	61.4	65.2	62.0	65.7	62.4	66.5
Kerala	68.1	73.5	68.4	74.5	64.6	69.8	64.8	70.8
Madhya Pradesh	53.1	53.4	55.2	55.7	57.6	58.7	60.1	61.5
Maharashtra	60.5	64.6	63.5	66.3	59.9	64.4	63.1	66.2
Orissa	55.2	55.5	55.8	56.6	59.4	59.8	60.1	61.0
Punjab	61.0	64.1	63.8	67.5	60.5	64.9	63.4	68.7
Rajasthan	57.8	59.8	59.0	61.1	61.0	64.5	63.2	66.0
Tamil Nadu	58.9	60.1	62.2	65.3	58.1	59.5	61.6	64.8
Uttar Pradesh	56.6	55.2	57.4	56.9	60.4	60.8	61.3	62.7
West Bengal	59.0	62.5	61.5	63.4	59.5	63.4	62.2	64.4
All-India	57.9	59.1	59.7	61.2	59.8	61.8	61.8	64.2

Table 7 shows the estimates of life expectancy at birth and at age 5 for 1990-97, that were computed from the adjusted as well as unadjusted death rates for incompleteness. It can be seen that, at the all India level, the adjustment reduces the estimate of life expectancy at birth by about 2 years, and life expectancy at age 5 by 2.5 years. The adjustment is particularly crucial for Andhra Pradesh and Tamil Nadu, where the life expectancy at birth is reduced by 3-5 years and life expectancy at age 5 by 4-6 years.

Reference

Bennett, N.G. and S. Horiuchi. 1984. Mortality estimation from registered deaths in less developed countries. Demography 21(2): 217-34.

Bhat, Mari P. N. 1987. Mortality in India: Levels, Trends and Patterns. Ph.D. dissertation in microfilms. Ann Arbour, Michigan.

_____. 1998. Demographic estimates for post-independence India: A new integration. Demography India 27(1):23-57.

Bhat, P. N. Mari, S. H. Preston, T. Dyson. 1984. Vital Rates in India, 1961-81. Report No. 4. Committee on Population and Demography. Washington D.C.: National Academy Press.

Horiuchi, S. and A. J. Coale. 1982. A simple equation for estimating the expectation of life at older ages. Population Studies 36: 317-326.

Horiuchi, S. and S. H. Preston. 1988. Age-specific growth rates: The legacy of past population dynamics. Demography 25(3): 429-441.

India, Registrar General, 1983. Report on Intensive Enquiry Conducted in a Sub-Sample of SRS Units, (1980-81). Occasional Paper No. 2 of 1983. Delhi: Controller of Publications.

India, Registrar General, 1988. Report on the Intensive Enquiry Conducted in a Sub-Sample of SRS Units. Occasional Paper No. 1 of 1988. Delhi: Controller of Publications.

International Institute for Population Sciences. 1995. National Family Health Survey, 1992-93(MCH and Family Planning). Mumbai: IIPS.

_____. 2000. National Family Health Survey, 1998-99 (NFHS-2: Preliminary Report. State-level Reports. Mumbai: IIPS.

Preston, S.H. and A. J. Coale. 1982. Age structure, growth, attrition and accession: A new synthesis. Population Index, 48(2): 217-259.

Preston S.H., A. J. Coale, J. Trussell and M. Weinstein. 1980. Estimating the completeness of reporting adult deaths in populations that are approximately stable. Population Index 46: 179-202.

United Nations. 1983. Indirect Techniques for Demographic Estimation, Manual X Population Studies, No. 81. New York: United Nations.

APPENDIX

Table A1 Sample Registration System-Based Abridged Life Table, All India, Males, 1981-90

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	34.3	105.4	0.0977	100000	92673	5433640	54.3
1-4		15.3	0.0587	90230	346363	5340967	59.2
5-9	3.0	3.3	0.0165	84937	421174	4994604	58.8
10-14	1.6	1.7	0.0086	83533	415862	4573430	54.8
15-19	1.9	2.1	0.0103	82812	411920	4157568	50.2
20-24	2.4	2.7	0.0134	81956	407033	3745648	45.7
25-29	2.6	2.9	0.0142	80857	401409	3338616	41.3
30-34	3.3	3.6	0.0179	79706	394966	2937207	36.9
35-39	4.3	4.8	0.0237	78280	386770	2542241	32.5
40-44	6.3	7.0	0.0342	76428	375608	2155471	28.2
45-49	9.3	10.3	0.0503	73815	359802	1779863	24.1
50-54	14.4	16.0	0.0770	70105	337027	1420061	20.3
55-59	21.2	23.6	0.1113	64705	305519	1083034	16.7
60-64	34.3	38.2	0.1742	57502	262473	777515	13.5
65-69	49.2	54.7	0.2404	47487	208893	515042	10.8
70+	99.4	117.8	1.0000	36070	306149	306149	8.5

Growth rate (70+) = 0.031
Correction for M70+ = 1.067
IMR = 97.7

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.90

Table A2 Sample Registration System-Based Abridged Life Table, All India, Females, 1981-90

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	37.6	105.7	0.0979	100000	92658	5446886	54.5
1-4		19.1	0.0727	90210	342796	5354228	59.4
5-9	3.8	4.3	0.0211	83649	413835	5011432	59.9
10-14	1.7	1.9	0.0095	81885	407481	4597597	56.1
15-19	2.7	3.0	0.0151	81107	402472	4190116	51.7
20-24	3.5	4.0	0.0196	79882	395487	3787643	47.4
25-29	3.3	3.8	0.0187	78313	387907	3392157	43.3
30-34	3.4	3.9	0.0193	76850	380540	3004250	39.1
35-39	3.8	4.3	0.0214	75366	372797	2623710	34.8
40-44	4.8	5.5	0.0270	73752	363780	2250913	30.5
45-49	6.5	7.4	0.0365	71760	352254	1887132	26.3
50-54	10.3	11.7	0.0568	69142	335891	1534878	22.2
55-59	15.4	17.5	0.0840	65214	312378	1198987	18.4
60-64	26.8	30.5	0.1416	59737	277531	886609	14.8
65-69	39.5	44.8	0.2016	51275	230534	609077	11.9
70+	88.0	108.1	1.0000	40938	378543	378543	9.2

Growth rate (70+) = 0.033
Correction for M70+ = 1.081
IMR = 97.9

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.88

Table A3 Sample Registration System-Based Abridged Life Table, Andhra Pradesh, Males, 1981-90

Age $x - x+n$	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	27.4	89.4	0.0838	100000	93715	5605107	56.1
1-4		11.1	0.0429	91620	355664	5511392	60.2
5-9	2.5	2.7	0.0134	87687	435508	5155728	58.8
10-14	1.4	1.5	0.0074	86516	430983	4720220	54.6
15-19	1.8	2.0	0.0098	85877	427270	4289237	49.9
20-24	2.7	2.9	0.0143	85031	422127	3861966	45.4
25-29	2.8	3.0	0.0148	83819	415989	3439839	41.0
30-34	3.6	3.9	0.0193	82576	408890	3023850	36.6
35-39	4.6	4.9	0.0243	80980	399976	2614960	32.3
40-44	6.1	6.5	0.0320	79010	388729	2214985	28.0
45-49	10.0	10.8	0.0524	76481	372387	1826256	23.9
50-54	15.2	16.3	0.0784	72473	348168	1453869	20.1
55-59	21.2	22.8	0.1076	66794	315996	1105701	16.6
60-64	35.9	38.6	0.1758	59604	271818	789705	13.2
65-69	52.4	56.4	0.2470	49123	215278	517887	10.5
70+	107.4	122.2	1.0000	36988	302609	302609	8.2

Growth rate (70+) = 0.029
Correction for M70+ = 1.059
IMR = 83.8

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.93

Table A4 Sample Registration System-Based Abridged Life Table, Andhra Pradesh, Females, 1981-90

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	26.2	80.1	0.0756	100000	94330	5833063	58.3
1-4		12.0	0.0463	92440	357986	5738733	62.1
5-9	2.3	2.6	0.0127	88158	437994	5380747	61.0
10-14	1.5	1.6	0.0082	87039	433413	4942754	56.8
15-19	2.6	2.9	0.0145	86326	428513	4509340	52.2
20-24	3.0	3.4	0.0167	85079	421832	4080827	48.0
25-29	3.1	3.5	0.0172	83654	414665	3658995	43.7
30-34	3.4	3.8	0.0188	82212	407202	3244330	39.5
35-39	3.3	3.7	0.0181	80669	399693	2837128	35.2
40-44	4.7	5.2	0.0257	79208	390947	2437435	30.8
45-49	6.7	7.4	0.0365	77171	378814	2046488	26.5
50-54	10.4	11.6	0.0564	74355	361297	1667674	22.4
55-59	13.7	15.3	0.0735	70164	337922	1306378	18.6
60-64	27.6	30.6	0.1422	65005	301911	968456	14.9
65-69	41.6	46.2	0.2070	55760	249944	666544	12.0
70+	88.7	106.1	1.0000	44218	416601	416601	9.4

Growth rate (70+) = 0.030
Correction for M70+ = 1.077
IMR = 75.6

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.90

Table A5 Sample Registration System-Based Abridged Life Table, Assam, Males, 1981-90

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	36.9	109.5	0.1012	100000	92410	5081523	50.8
1-4		17.3	0.0662	89880	343151	4989113	55.5
5-9	4.4	5.0	0.0245	83928	414493	4645962	55.4
10-14	2.1	2.4	0.0118	81869	406935	4231469	51.7
15-19	1.9	2.1	0.0105	80905	402409	3824535	47.3
20-24	2.8	3.1	0.0156	80059	397182	3422126	42.7
25-29	3.2	3.5	0.0175	78814	390613	3024943	38.4
30-34	4.0	4.4	0.0220	77431	382898	2634330	34.0
35-39	5.0	5.7	0.0279	75728	373353	2251432	29.7
40-44	8.0	9.0	0.0442	73613	359938	1878079	25.5
45-49	12.4	13.9	0.0673	70362	339968	1518141	21.6
50-54	20.9	23.5	0.1111	65625	309898	1178173	18.0
55-59	27.6	31.0	0.1440	58334	270670	868275	14.9
60-64	45.5	51.1	0.2264	49934	221404	597605	12.0
65-69	62.1	69.8	0.2971	38628	164447	376201	9.7
70+	109.7	128.2	1.0000	27151	211754	211754	7.8

Growth rate (70+) = 0.022
Correction for M70+ = 1.040
IMR = 101.2

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.89

Table A6 Sample Registration System-Based Abridged Life Table, Assam, Females, 1981-90

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	37.5	103.1	0.0957	100000	92823	4893888	48.9
1-4		19.8	0.0750	90430	343063	4801066	53.1
5-9	4.9	6.2	0.0307	83646	411813	4458003	53.3
10-14	2.0	2.6	0.0130	81080	402765	4046190	49.9
15-19	3.0	3.8	0.0187	80026	396384	3643425	45.5
20-24	4.3	5.4	0.0269	78527	387359	3247041	41.3
25-29	5.1	6.5	0.0320	76417	375973	2859682	37.4
30-34	5.7	7.3	0.0360	73973	363205	2483709	33.6
35-39	5.9	7.5	0.0369	71309	349962	2120504	29.7
40-44	7.4	9.5	0.0466	68676	335380	1770542	25.8
45-49	10.3	13.1	0.0636	65477	316969	1435162	21.9
50-54	16.2	20.8	0.0989	61311	291398	1118193	18.2
55-59	22.8	29.2	0.1360	55248	257451	826795	15.0
60-64	37.3	47.9	0.2137	47732	213158	569345	11.9
65-69	55.2	70.8	0.3007	37531	159440	356187	9.5
70+	99.9	133.4	1.0000	26245	196747	196747	7 5

Growth rate (70+) = 0.024
Correction for M70+ = 1.042
IMR = 95.7

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.78

Table A7 Sample Registration System-Based Abridged Life Table, Bihar, Males, 1981-90

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	37.8	104.5	0.0969	100000	92733	5206322	52.1
1-4		19.7	0.0749	90310	342631	5113589	56.6
5-9	4.3	5.0	0.0249	83543	412511	4770958	57.1
10-14	2.0	2.3	0.0116	81461	404936	4358446	53.5
15-19	2.2	2.6	0.0131	80513	399931	3953510	49.1
20-24	2.9	3.4	0.0167	79459	393971	3553579	44.7
25-29	3.0	3.5	0.0172	78129	387285	3159608	40.4
30-34	3.4	4.0	0.0197	76785	380135	2772323	36.1
35-39	4.5	5.3	0.0261	75269	371439	2392188	31.8
40-44	7.0	8.3	0.0405	73307	359109	2020749	27.6
45-49	9.8	11.6	0.0562	70337	341802	1661640	23.6
50-54	14.1	16.6	0.0799	66384	318667	1319838	19.9
55-59	20.8	24.5	0.1153	61083	287807	1001171	16.4
60-64	33.0	38.8	0.1768	54040	246308	713364	13.2
65-69	48.1	56.6	0.2477	44483	194866	467055	10.5
70+	98.9	122.9	1.0000	33463	272190	272190	8.1

Growth rate (70+) = 0.028
Correction for M70+ = 1.057
IMR = 96.9

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.85

Table A8 Sample Registration System-Based Abridged Life Table, Bihar, Females, 1981-90

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	43.0	110.6	0.1021	100000	92343	5060817	50.6
1-4		24.5	0.0918	89790	336503	4968474	55.3
5-9	5.8	6.5	0.0319	81551	401257	4631972	56.8
10-14	2.3	2.6	0.0127	78952	392253	4230714	53.6
15-19	3.6	4.0	0.0199	77949	385867	3838461	49.2
20-24	4.5	5.0	0.0249	76397	377229	3452594	45.2
25-29	4.4	4.9	0.0243	74494	367955	3075365	41.3
30-34	4.5	5.0	0.0246	72687	358960	2707411	37.2
35-39	5.1	5.7	0.0279	70897	349531	2348451	33.1
40-44	6.6	7.4	0.0362	68916	338339	1998920	29.0
45-49	8.6	9.6	0.0468	66420	324333	1660581	25.0
50-54	12.9	14.4	0.0694	63313	305583	1336248	21.1
55-59	19.4	21.5	0.1021	58920	279557	1030666	17.5
60-64	30.6	34.0	0.1565	52903	243818	751109	14.2
65-69	46.1	51.2	0.2268	44624	197816	507291	11.4
70+	94.9	111.5	1.0000	34502	309475	309475	9.0

Growth rate (70+) = 0.025
Correction for M70+ = 1.058
IMR = 102.1

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.90

Table A9 Sample Registration System-Based Abridged Life Table, Gujarat, Males,1981-90

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	33.9	105.1	0.0974	100000	92695	5373231	53.7
1-4		14.9	0.0571	90260	346871	5280536	58.5
5-9	2.8	3.2	0.0160	85108	422141	4933665	58.0
10-14	1.5	1.8	0.0088	83749	416900	4511524	53.9
15-19	1.8	2.0	0.0101	83011	412966	4094625	49.3
20-24	2.4	2.7	0.0136	82176	408087	3681659	44.8
25-29	2.7	3.1	0.0152	81059	402210	3273572	40.4
30-34	3.2	3.7	0.0183	79825	395476	2871362	36.0
35-39	4.3	4.9	0.0244	78366	387046	2475886	31.6
40-44	6.4	7.4	0.0362	76453	375349	2088841	27.3
45-49	9.7	11.2	0.0545	73687	358404	1713491	23.3
50-54	15.9	18.3	0.0875	69675	333124	1355087	19.4
55-59	24.4	28.0	0.1308	63575	297080	1021963	16.1
60-64	36.1	41.5	0.1882	55257	250291	724883	13.1
65-69	49.8	57.2	0.2502	44860	196238	474592	10.6
70+	98.4	120.8	1.0000	33636	278354	278354	8.3

Growth rate (70+) = 0.033
Correction for M70+ = 1.068
IMR = 97.4

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.87

Table A10 Sample Registration System-Based Abridged Life Table, Gujarat, Females, 1981-90

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	36.7	108.9	0.1007	100000	92448	5475621	54.8
1-4		17.2	0.0657	89930	343466	5383174	59.9
5-9	3.1	3.8	0.0187	84019	416164	5039708	60.0
10-14	1.5	1.8	0.0089	82446	410404	4623544	56.1
15-19	2.4	2.9	0.0144	81715	405634	4213140	51.6
20-24	3.3	4.1	0.0201	80538	398643	3807507	47.3
25-29	3.2	3.9	0.0194	78919	390760	3408864	43.2
30-34	3.1	3.8	0.0189	77385	383266	3018104	39.0
35-39	3.5	4.2	0.0209	75922	375646	2634837	34.7
40-44	4.3	5.2	0.0258	74337	366885	2259191	30.4
45-49	5.4	6.6	0.0326	72417	356179	1892306	26.1
50-54	11.0	13.4	0.0650	70054	338886	1536127	21.9
55-59	16.0	19.5	0.0930	65500	312268	1197241	18.3
60-64	26.0	31.6	0.1466	59407	275258	884973	14.9
65-69	35.1	42.8	0.1931	50696	229003	609715	12.0
70+	81.0	107.4	1.0000	40905	380713	380713	9.3

Growth rate (70+) = 0.035
Correction for M70+ = 1.087
IMR = 100.7

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.82

Table A11 Sample Registration System-Based Abridged Life Table, Haryana, Males,1981-90

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	25.7	86.8	0.0815	100000	93888	5828389	58.3
1-4		9.7	0.0377	91850	357872	5734501	62.4
5-9	1.8	2.1	0.0106	88385	439583	5376629	60.8
10-14	1.1	1.3	0.0067	87448	435782	4937046	56.5
15-19	1.6	1.9	0.0096	86865	432242	4501264	51.8
20-24	2.4	2.9	0.0144	86032	427059	4069022	47.3
25-29	2.3	2.7	0.0135	84792	421093	3641963	43.0
30-34	2.9	3.5	0.0174	83645	414592	3220870	38.5
35-39	3.8	4.5	0.0224	82192	406356	2806278	34.1
40-44	4.7	5.7	0.0282	80351	396099	2399922	29.9
45-49	6.8	8.2	0.0400	78089	382641	2003823	25.7
50-54	11.0	13.3	0.0643	74968	362786	1621182	21.6
55-59	14.5	17.5	0.0839	70147	336027	1258397	17.9
60-64	26.9	32.4	0.1500	64264	297220	922370	14.4
65-69	39.9	48.1	0.2146	54624	243818	625150	11.4
70+	87.7	112.5	1.0000	42903	381332	381332	8.9

Growth rate (70+) = 0.028
Correction for M70+ = 1.064
IMR = 81.5

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.83

Table A12 Sample Registration System-Based Abridged Life Table, Haryana, Females, 1981-90

Age $x - x+n$	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	33.0	103.8	0.0963	100000	92778	5770850	57.7
1-4		14.1	0.0542	90370	347998	5678072	62.8
5-9	2.2	2.5	0.0123	85468	424714	5330074	62.4
10-14	1.2	1.4	0.0068	84418	420664	4905360	58.1
15-19	2.3	2.7	0.0134	83847	416437	4484696	53.5
20-24	3.0	3.4	0.0169	82727	410137	4068259	49.2
25-29	3.1	3.6	0.0177	81327	403035	3658122	45.0
30-34	2.9	3.3	0.0164	79887	396166	3255087	40.7
35-39	3.0	3.4	0.0171	78580	389540	2858922	36.4
40-44	3.2	3.7	0.0183	77236	382642	2469382	32.0
45-49	5.4	6.2	0.0303	75820	373351	2086740	27.5
50-54	8.5	9.7	0.0475	73520	358866	1713390	23.3
55-59	12.4	14.3	0.0690	70026	338056	1354524	19.3
60-64	23.0	26.4	0.1240	65196	305772	1016468	15.6
65-69	32.2	37.1	0.1696	57113	261351	710695	12.4
70+	83.4	105.5	1.0000	47428	449344	449344	9.5

Growth rate (70+) = 0.038
Correction for M70+ = 1.101
IMR = 96.3

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.87

Table A13 Sample Registration System-Based Abridged Life Table, Himachal Pradesh, Males, 1981-90

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	23.3	83.5	0.0786	100000	94105	6039154	60.4
1-4		7.6	0.0300	92140	360966	5945049	64.5
5-9	1.7	1.7	0.0084	89379	445024	5584083	62.5
10-14	1.0	1.0	0.0051	88631	442025	5139059	58.0
15-19	1.6	1.6	0.0079	88179	439151	4697033	53.3
20-24	2.1	2.1	0.0106	87481	435079	4257882	48.7
25-29	2.1	2.1	0.0105	86550	430481	3822803	44.2
30-34	3.5	3.5	0.0172	85642	424538	3392322	39.6
35-39	3.6	3.6	0.0180	84173	417070	2967784	35.3
40-44	6.1	6.1	0.0300	82655	407077	2550714	30.9
45-49	8.6	8.6	0.0423	80176	392403	2143637	26.7
50-54	10.0	10.0	0.0489	76786	374545	1751234	22.8
55-59	17.8	17.8	0.0850	73033	349639	1376689	18.9
60-64	26.8	26.8	0.1254	66823	313172	1027050	15.4
65-69	41.7	41.7	0.1887	58446	264651	713878	12.2
70+	98.4	105.5	1.0000	47415	449227	449227	9.5

Growth rate (70+) = 0.029
Correction for M70+ = 1.072
IMR = 78.6

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 1.00

Table A14 Sample Registration System-Based Abridged Life Table, Himachal Pradesh, Females, 1981-90

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	24.61	67.3	0.0641	100000	95193	6118281	61.2
1-4		13.3	0.0515	93590	361106	6023089	64.4
5-9	1.60	1.7	0.0084	88770	441991	5661982	63.8
10-14	1.33	1.4	0.0070	88026	438591	5219991	59.3
15-19	1.66	1.7	0.0087	87411	435157	4781399	54.7
20-24	3.56	3.7	0.0186	86652	429240	4346243	50.2
25-29	2.35	2.5	0.0123	85044	422605	3917003	46.1
30-34	3.59	3.8	0.0187	83998	416061	3494398	41.6
35-39	3.51	3.7	0.0183	82426	408358	3078338	37.3
40-44	4.29	4.5	0.0223	80917	400069	2669980	33.0
45-49	6.96	7.3	0.0360	79111	388438	2269910	28.7
50-54	9.18	9.7	0.0472	76265	372329	1881472	24.7
55-59	13.66	14.4	0.0694	72667	350727	1509143	20.8
60-64	18.85	19.8	0.0945	67624	322139	1158416	17.1
65-69	37.73	39.7	0.1806	61232	278507	836277	13.7
70+	75.16	89.9	1.0000	50171	557770	557770	11.1

Growth rate (70+) = 0.039
Correction for M70+ = 1.137
IMR = 64.1

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.95

Table A15 Sample Registration System-Based Abridged Life Table, Karnataka' Males,1981-90

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	25.1	81.5	0.0768	100000	94240	5729363	57.3
1-4		10.2	0.0398	92320	359166	5635123	61.0
5-9	1.8	2.1	0.0104	88642	440903	5275957	59.5
10-14	1.1	1.3	0.0067	87719	437129	4835054	55.1
15-19	1.6	1.8	0.0092	87133	433661	4397926	50.5
20-24	2.0	2.3	0.0115	86332	429171	3964265	45.9
25-29	2.1	2.4	0.0121	85337	424103	3535094	41.4
30-34	3.0	3.5	0.0174	84304	417858	3110991	36.9
35-39	4.3	5.0	0.0249	82839	409035	2693133	32.5
40-44	5.6	6.6	0.0325	80775	397306	2284098	28.3
45-49	9.0	10.6	0.0516	78148	380652	1886792	24.1
50-54	14.0	16.4	0.0788	74113	355960	1506140	20.3
55-59	20.8	24.4	0.1150	68271	321721	1150180	16.8
60-64	32.2	37.9	0.1731	60417	275937	828459	13.7
65-69	45.3	53.2	0.2349	49958	220449	552522	11.1
70+	92.9	115.1	1.0000	38222	332073	332073	8.7

Growth rate (70+) = 0.024
Correction for M70+ = 1.053
IMR = 76.8

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.85

Table A16 Sample Registration System-Based Abridged Life Table, Karnataka, Females, 1981-90

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	24.5	70.9	0.0673	100000	94953	5836126	58.4
1-4		12.2	0.0474	93270	360923	5741174	61.6
5-9	2.2	3.0	0.0148	88849	440969	5380251	60.6
10-14	1.4	1.8	0.0090	87538	435715	4939282	56.4
15-19	2.2	2.9	0.0144	86748	430625	4503567	51.9
20-24	2.6	3.4	0.0169	85502	423907	4072941	47.6
25-29	2.7	3.5	0.0175	84061	416624	3649034	43.4
30-34	2.9	3.9	0.0191	82589	409004	3232410	39.1
35-39	3.1	4.1	0.0203	81013	400960	2823406	34.9
40-44	4.2	5.6	0.0277	79371	391352	2422446	30.5
45-49	5.7	7.6	0.0374	77169	378640	2031094	26.3
50-54	8.4	11.2	0.0544	74287	361328	1652453	22.2
55-59	12.3	16.4	0.0787	70245	337401	1291125	18.4
60-64	22.6	30.1	0.1398	64716	300957	953724	14.7
65-69	32.9	43.9	0.1978	55667	250805	652767	11.7
70+	78.4	111.1	1.0000	44655	401962	401962	9.0

Growth rate (70+) = 0.027
Correction for M70+ = 1.062
IMR = 67.3

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.75

Table A17 Sample Registration System-Based Abridged Life Table, Kerala, Males, 1981-90

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	9.4	31.0	0.0303	100000	97728	6517708	65.2
1-4		3.9	0.0155	96970	383753	6419981	66.2
5-9	1.1	1.1	0.0057	95469	475994	6036228	63.2
10-14	0.6	0.6	0.0030	94928	473917	5560234	58.6
15-19	1.1	1.1	0.0055	94639	471890	5086317	53.7
20-24	1.2	1.3	0.0064	94117	469080	4614427	49.0
25-29	1.9	2.0	0.0102	93515	465199	4145347	44.3
30-34	2.6	2.7	0.0133	92565	459739	3680147	39.8
35-39	3.1	3.3	0.0161	91331	452971	3220408	35.3
40-44	5.1	5.4	0.0265	89857	443337	2767438	30.8
45-49	7.8	8.2	0.0403	87477	428579	2324100	26.6
50-54	11.8	12.4	0.0603	83954	407107	1895521	22.6
55-59	16.9	17.8	0.0854	78889	377611	1488414	18.9
60-64	24.6	25.9	0.1217	72155	338816	1110804	15.4
65-69	38.2	40.2	0.1826	63371	287927	771987	12.2
70+	94.4	107.0	1.0000	51800	484061	484061	9.3

Growth rate (70+) = 0.031
Correction for M70+ = 1.077
IMR = 30.3

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.95

Table A18 Sample Registration System-Based Abridged Life Table, Kerala, Females,1981-90

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	8.3	26.5	0.0260	100000	98050	6989138	69.9
1-4		3.6	0.0143	97400	385773	6891088	70.8
5-9	0.8	0.9	0.0044	96008	478996	6505315	67.8
10-14	0.5	0.6	0.0029	95590	477264	6026319	63.0
15-19	0.7	0.9	0.0042	95316	475567	5549054	58.2
20-24	1.2	1.4	0.0068	94911	472952	5073487	53.5
25-29	1.2	1.4	0.0070	94270	469689	4600535	48.8
30-34	1.2	1.4	0.0069	93606	466407	4130846	44.1
35-39	1.6	1.9	0.0093	92957	462632	3664439	39.4
40-44	2.1	2.4	0.0120	92096	457716	3201808	34.8
45-49	3.1	3.6	0.0177	90991	450924	2744092	30.2
50-54	4.6	5.3	0.0263	89379	441026	2293168	25.7
55-59	7.9	9.1	0.0445	87032	425476	1852141	21.3
60-64	14.0	16.1	0.0773	83158	399712	1426666	17.2
65-69	23.6	27.2	0.1272	76726	359238	1026954	13.4
70+	78.5	100.3	1.0000	66969	667715	667715	10.0

Growth rate (70+) = 0.038
Correction for M70+ = 1.111
IMR = 26

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.87

Table A19 Sample Registration System-Based Abridged Life Table, Madhya Pradesh, Males, 1981-90

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	48.7	138.8	0.1257	100000	90573	5158609	51.6
1-4		23.9	0.0895	87430	328193	5068037	58.0
5-9	3.6	3.6	0.0180	79602	394420	4739844	59.5
10-14	1.8	1.8	0.0089	78166	389090	4345423	55.6
15-19	2.1	2.1	0.0104	77470	385326	3956333	51.1
20-24	2.4	2.4	0.0119	76661	381017	3571007	46.6
25-29	2.8	2.8	0.0138	75746	376117	3189990	42.1
30-34	3.4	3.4	0.0170	74701	370327	2813874	37.7
35-39	4.4	4.4	0.0215	73430	363202	2443547	33.3
40-44	6.0	6.0	0.0297	71850	353925	2080345	29.0
45-49	8.4	8.4	0.0409	69720	341471	1726419	24.8
50-54	13.6	13.6	0.0657	66868	323356	1384949	20.7
55-59	21.8	21.8	0.1035	62474	296212	1061592	17.0
60-64	39.5	39.5	0.1798	56011	254872	765380	13.7
65-69	53.5	53.5	0.2361	45938	202581	510508	11.1
70+	105.5	114.0	1.0000	35094	307927	307927	8.8

Growth rate (70+) = 0.035
Correction for M70+ = 1.080
IMR = 125.7

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 1.00

Table A20 Sample Registration System-Based Abridged Life Table, Madhya Pradesh, Females, 1981-90

Age $x - x+n$	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	51.7	133.0	0.1209	100000	90933	5162044	51.6
1-4		29.0	0.1075	87910	325649	5071112	57.7
5-9	4.8	4.8	0.0238	78459	387622	4745463	60.5
10-14	1.9	1.9	0.0097	76590	381103	4357841	56.9
15-19	3.3	3.3	0.0162	75851	376189	3976738	52.4
20-24	4.2	4.2	0.0208	74625	369246	3600549	48.2
25-29	3.6	3.6	0.0179	73074	362101	3231304	44.2
30-34	3.7	3.7	0.0183	71767	355553	2869203	40.0
35-39	4.1	4.1	0.0205	70455	348664	2513650	35.7
40-44	4.4	4.4	0.0219	69011	341284	2164986	31.4
45-49	6.1	6.1	0.0300	67503	332443	1823702	27.0
50-54	10.8	10.8	0.0527	65475	318743	1491259	22.8
55-59	16.6	16.6	0.0797	62023	297749	1172516	18.9
60-64	31.3	31.3	0.1452	57077	264668	874766	15.3
65-69	43.5	43.5	0.1963	48790	220004	610098	12.5
70+	93.8	100.5	1.0000	39211	390094	390094	9.9

Growth rate (70+) = 0.026
Correction for M70+ = 1.071
IMR = 120.9

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 1.00

Table A21 Sample Registration System-Based Abridged Life Table, Maharashtra, Males, 1981-90

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	22.4	74.9	0.0709	100000	94683	5795595	58.0
1-4		8.7	0.0338	92910	362995	5700913	61.4
5-9	1.8	2.2	0.0108	89766	446414	5337918	59.5
10-14	1.0	1.2	0.0062	88799	442625	4891504	55.1
15-19	1.5	1.7	0.0086	88251	439359	4448879	50.4
20-24	1.8	2.2	0.0108	87493	435094	4009519	45.8
25-29	2.2	2.6	0.0128	86545	429960	3574426	41.3
30-34	2.7	3.2	0.0158	85439	423828	3144466	36.8
35-39	3.6	4.3	0.0213	84092	415978	2720638	32.4
40-44	5.9	7.0	0.0346	82299	404372	2304659	28.0
45-49	8.0	9.5	0.0462	79449	388066	1900287	23.9
50-54	11.8	14.1	0.0680	75777	366008	1512222	20.0
55-59	20.3	24.1	0.1137	70626	333060	1146214	16.2
60-64	32.1	38.2	0.1744	62597	285701	813154	13.0
65-69	48.9	58.2	0.2540	51683	225602	527454	10.2
70+	101.2	127.7	1.0000	38558	301852	301852	7.8

Growth rate (70+) = 0.032
Correction for M70+ = 1.060
IMR = 70.9

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.84

Table A22 Sample Registration System-Based Abridged Life Table, Maharashtra, Females, 1981-90

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	23.0	69.8	0.0663	100000	95028	6093138	60.9
1-4		10.7	0.0416	93370	362805	5998111	64.2
5-9	2.1	2.4	0.0119	89488	444770	5635306	63.0
10-14	1.1	1.3	0.0064	88420	440693	5190536	58.7
15-19	1.9	2.2	0.0110	87857	436877	4749843	54.1
20-24	2.8	3.2	0.0161	86893	430974	4312967	49.6
25-29	2.3	2.7	0.0132	85496	424651	3881993	45.4
30-34	2.0	2.3	0.0117	84364	419361	3457342	41.0
35-39	2.7	3.1	0.0155	83381	413670	3037980	36.4
40-44	4.3	4.9	0.0241	82087	405484	2624311	32.0
45-49	5.2	6.0	0.0294	80106	394636	2218826	27.7
50-54	7.6	8.7	0.0425	77748	380484	1824191	23.5
55-59	12.8	14.7	0.0709	74446	359034	1443707	19.4
60-64	21.5	24.7	0.1161	69168	325759	1084673	15.7
65-69	35.5	40.8	0.1851	61136	277391	758914	12.4
70+	81.5	103.5	1.0000	49820	481523	481523	9.7

Growth rate (70+) = 0.038
Correction for M70+ = 1.105
IMR = 66.3

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.87

Table A23 Sample Registration System-Based Abridged Life Table, Orissa, Males, 1981-90

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	42.8	146.0	0.1316	100000	90130	5274584	52.7
1-4		15.0	0.0575	86840	333627	5184454	59.7
5-9	3.0	3.0	0.0150	81846	406155	4850827	59.3
10-14	1.9	1.9	0.0094	80616	401192	4444672	55.1
15-19	2.3	2.3	0.0113	79861	397044	4043480	50.6
20-24	2.8	2.8	0.0139	78956	392036	3646436	46.2
25-29	3.0	3.0	0.0150	77858	386375	3254400	41.8
30-34	4.2	4.2	0.0206	76692	379511	2868025	37.4
35-39	5.2	5.2	0.0257	75113	370744	2488514	33.1
40-44	6.2	6.2	0.0306	73185	360330	2117770	28.9
45-49	9.6	9.6	0.0467	70947	346448	1757440	24.8
50-54	15.4	15.4	0.0740	67632	325646	1410992	20.9
55-59	22.3	22.3	0.1056	62627	296605	1085346	17.3
60-64	36.8	36.8	0.1686	56015	256468	788742	14.1
65-69	50.4	50.4	0.2238	46572	206803	532273	11.4
70+	102.4	111.1	1.0000	36149	325470	325470	9.0

Growth rate (70+) = 0.035
Correction for M70+ = 1.085
IMR = 131.6

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 1.00

Table A24 Sample Registration System-Based Abridged Life Table, Orissa, Females, 1981-90

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	42.9	134.0	0.1218	100000	90865	5268722	52.7
1-4		18.2	0.0692	87820	334572	5177857	59.0
5-9	3.7	3.7	0.0181	81744	405017	4843285	59.2
10-14	1.8	1.8	0.0091	80262	399493	4438268	55.3
15-19	3.0	3.0	0.0147	79535	394744	4038775	50.8
20-24	4.7	4.7	0.0233	78363	387244	3644031	46.5
25-29	4.0	4.0	0.0199	76535	378876	3256787	42.6
30-34	4.4	4.4	0.0216	75016	371034	2877911	38.4
35-39	4.6	4.6	0.0227	73398	362826	2506877	34.2
40-44	5.5	5.5	0.0273	71732	353772	2144052	29.9
45-49	8.1	8.1	0.0399	69776	341923	1790280	25.7
50-54	11.1	11.1	0.0542	66993	325888	1448357	21.6
55-59	20.6	20.6	0.0979	63362	301303	1122469	17.7
60-64	32.4	32.4	0.1498	57159	264391	821166	14.4
65-69	48.4	48.4	0.2158	48598	216765	556775	11.5
70+	101.9	112.1	1.0000	38108	340010	340010	8.9

Growth rate (70+) = 0.041
Correction for M70+ = 1.100
IMR = 121.8

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 1.00

Table A25 Sample Registration System-Based Abridged Life Table, Punjab, Males, 1981-90

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	20.8	71.0	0.0674	100000	94945	6015130	60.2
1-4		7.7	0.0303	93260	365264	5920185	63.5
5-9	1.6	1.8	0.0091	90432	450096	5554921	61.4
10-14	1.1	1.3	0.0065	89606	446573	5104825	57.0
15-19	1.9	2.2	0.0112	89023	442629	4658252	52.3
20-24	2.8	3.2	0.0160	88028	436611	4215623	47.9
25-29	2.8	3.3	0.0164	86616	429529	3779012	43.6
30-34	3.0	3.6	0.0176	85196	422229	3349483	39.3
35-39	4.3	5.1	0.0250	83696	413252	2927254	35.0
40-44	6.0	7.0	0.0346	81605	400973	2514002	30.8
45-49	7.0	8.2	0.0402	78784	386008	2113028	26.8
50-54	10.0	11.7	0.0569	75619	367334	1727021	22.8
55-59	12.3	14.5	0.0700	71315	344095	1359687	19.1
60-64	22.7	26.7	0.1253	66323	310836	1015592	15.3
65-69	30.2	35.5	0.1630	58011	266422	704756	12.1
70+	90.2	110.8	1.0000	48558	438334	438334	9.0

Growth rate (70+) = 0.020
Correction for M70+ = 1.044
IMR = 67.4

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.85

Table A26 Sample Registration System-Based Abridged Life Table, Punjab, Females, 1981-90

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	25.3	75.4	0.0714	100000	94645	6060075	60.6
1-4		12.1	0.0470	92860	359433	5965430	64.2
5-9	1.8	2.4	0.0118	88494	439864	5605997	63.3
10-14	1.2	1.6	0.0081	87452	435483	5166133	59.1
15-19	1.9	2.5	0.0124	86741	431027	4730650	54.5
20-24	2.0	2.6	0.0127	85669	425617	4299623	50.2
25-29	2.3	3.1	0.0153	84577	419657	3874006	45.8
30-34	2.2	2.9	0.0145	83285	413408	3454349	41.5
35-39	2.6	3.4	0.0166	82078	406975	3040941	37.0
40-44	2.9	3.8	0.0190	80712	399722	2633966	32.6
45-49	3.9	5.1	0.0254	79176	390855	2234245	28.2
50-54	8.8	11.6	0.0562	77166	374986	1843390	23.9
55-59	8.7	11.5	0.0558	72829	353978	1468404	20.2
60-64	15.1	19.8	0.0944	68763	327584	1114426	16.2
65-69	23.0	30.2	0.1404	62271	289501	786842	12.6
70+	77.3	107.6	1.0000	53529	497341	497341	9.3

Growth rate (70+) = 0.024
Correction for M70+ = 1.058
IMR = 71.4

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.76

Table A27 Sample Registration System-Based Abridged Life Table, Rajasthan, Males, 1981-90

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	40.5	110.3	0.1019	100000	92358	5305429	53.1
1-4		21.5	0.0812	89810	339187	5213072	58.0
5-9	3.3	3.4	0.0170	82518	409090	4873884	59.1
10-14	1.8	1.9	0.0094	81118	403686	4464794	55.0
15-19	1.5	1.5	0.0075	80356	400265	4061109	50.5
20-24	2.5	2.5	0.0125	79750	396247	3660843	45.9
25-29	2.6	2.7	0.0134	78749	391114	3264597	41.5
30-34	3.7	3.8	0.0187	77697	384852	2873483	37.0
35-39	4.5	4.6	0.0229	76244	376861	2488630	32.6
40-44	6.3	6.5	0.0322	74500	366511	2111769	28.3
45-49	9.3	9.6	0.0469	72104	352065	1745258	24.2
50-54	15.5	16.0	0.0770	68722	330376	1393193	20.3
55-59	22.8	23.5	0.1110	63429	299535	1062817	16.8
60-64	37.6	38.8	0.1768	56385	257001	763282	13.5
65-69	54.1	55.8	0.2447	46415	203686	506281	10.9
70+	104.4	115.9	1.0000	35059	302595	302595	8.6

Growth rate (70+) = 0.034
Correction for M70+ = 1.076
IMR = 101.9

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.97

Table A28 Sample Registration System-Based Abridged Life Table, Rajasthan, Females, 1981-90

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	46.4	114.6	0.1055	100000	92088	5344578	53.4
1-4		27.5	0.1022	89450	332651	5252490	58.7
5-9	4.3	4.6	0.0226	80305	396989	4919840	61.3
10-14	2.0	2.2	0.0109	78491	390323	4522851	57.6
15-19	3.1	3.3	0.0166	77639	384975	4132527	53.2
20-24	3.6	3.9	0.0193	76351	378067	3747552	49.1
25-29	3.3	3.5	0.0174	74876	371126	3369485	45.0
30-34	3.2	3.4	0.0171	73575	364736	2998359	40.8
35-39	3.4	3.6	0.0180	72320	358342	2633623	36.4
40-44	3.8	4.1	0.0201	71017	351515	2275281	32.0
45-49	6.0	6.4	0.0315	69589	342456	1923766	27.6
50-54	9.4	10.1	0.0493	67394	328665	1581310	23.5
55-59	13.4	14.4	0.0696	64072	309205	1252645	19.6
60-64	25.7	27.6	0.1292	59610	278797	943440	15.8
65-69	37.0	39.8	0.1809	51909	236064	664644	12.8
70+	83.5	99.2	1.0000	42517	428580	428580	10.1

Growth rate (70+) = 0.036
Correction for M70+ = 1.106
IMR = 105.5

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.93

Table A29 Sample Registration System-Based Abridged Life Table, Tamil Nadu, Males, 1981-90

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	25.0	80.9	0.0763	100000	94278	5590780	55.9
1-4		10.4	0.0403	92370	359245	5496503	59.5
5-9	2.4	2.7	0.0134	88648	440269	5137258	58.0
10-14	1.3	1.5	0.0073	87459	435705	4696989	53.7
15-19	2.2	2.5	0.0125	86823	431413	4261284	49.1
20-24	3.1	3.5	0.0175	85742	424949	3829871	44.7
25-29	2.9	3.4	0.0168	84238	417660	3404922	40.4
30-34	3.8	4.4	0.0215	82826	409670	2987262	36.1
35-39	4.7	5.4	0.0269	81042	399763	2577593	31.8
40-44	6.5	7.4	0.0365	78864	387120	2177830	27.6
45-49	9.4	10.8	0.0524	75985	369962	1790709	23.6
50-54	15.0	17.3	0.0827	72000	345115	1420747	19.7
55-59	21.0	24.1	0.1138	66046	311436	1075632	16.3
60-64	33.5	38.6	0.1758	58528	266917	764197	13.1
65-69	50.3	57.8	0.2525	48238	210738	497280	10.3
70+	103.3	125.8	1.0000	36057	286542	286542	7.9

Growth rate (70+) = 0.031
Correction for M70+ = 1.060
IMR = 76.3

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.87

Table A30 Sample Registration System-Based Abridged Life Table, Tamil Nadu, Females, 1981-90

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	27.1	84.2	0.0792	100000	94060	5598895	56.0
1-4		12.1	0.0468	92080	356474	5504835	59.8
5-9	2.4	3.1	0.0151	87772	435541	5148360	58.7
10-14	1.4	1.8	0.0089	86444	430298	4712819	54.5
15-19	2.8	3.5	0.0172	85675	424698	4282521	50.0
20-24	3.5	4.4	0.0218	84204	416428	3857823	45.8
25-29	3.1	3.8	0.0190	82367	407921	3441394	41.8
30-34	2.9	3.6	0.0177	80802	400441	3033473	37.5
35-39	3.7	4.7	0.0230	79375	392302	2633032	33.2
40-44	4.6	5.8	0.0284	77546	382223	2240730	28.9
45-49	6.7	8.4	0.0409	75343	369013	1858507	24.7
50-54	10.2	12.8	0.0619	72262	350128	1489494	20.6
55-59	15.3	19.1	0.0912	67789	323489	1139366	16.8
60-64	27.3	34.1	0.1572	61606	283819	815877	13.2
65-69	43.5	54.4	0.2392	51921	228551	532058	10.2
70+	98.3	130.1	1.0000	39499	303507	303507	7.7

Growth rate (70+) = 0.032
Correction for M70+ = 1.059
IMR = 79.2

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.80

Table A31 Sample Registration System-Based Abridged Life Table, Uttar Pradesh, Males, 1981-90

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	47.1	145.2	0.1309	100000	90183	5042852	50.4
1-4		20.2	0.0767	86910	329304	4952670	57.0
5-9	3.9	4.4	0.0216	80242	396885	4623366	57.6
10-14	1.9	2.1	0.0105	78512	390498	4226481	53.8
15-19	2.1	2.3	0.0115	77687	386201	3835983	49.4
20-24	2.6	2.9	0.0145	76793	381182	3449782	44.9
25-29	2.8	3.1	0.0153	75680	375498	3068600	40.5
30-34	3.3	3.7	0.0185	74519	369144	2693103	36.1
35-39	4.6	5.1	0.0252	73138	361076	2323959	31.8
40-44	7.0	7.8	0.0385	71292	349607	1962883	27.5
45-49	10.3	11.5	0.0560	68550	333153	1613276	23.5
50-54	16.1	18.1	0.0864	64711	309580	1280123	19.8
55-59	23.0	25.8	0.1212	59121	277688	970543	16.4
60-64	36.4	40.9	0.1855	51954	235674	692855	13.3
65-69	52.2	58.6	0.2557	42315	184530	457181	10.8
70+	97.1	115.5	1.0000	31497	272651	272651	8.7

Growth rate (70+) = 0.027
Correction for M70+ = 1.059
IMR = 130.9

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.89

Table A32 Sample Registration System-Based Abridged Life Table, Uttar Pradesh, Females, 1981-90

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	56.9	155.8	0.1395	100000	89538	4855140	48.6
1-4		29.1	0.1078	86050	318686	4765603	55.4
5-9	5.6	6.2	0.0304	76772	378032	4446917	57.9
10-14	2.1	2.3	0.0117	74441	370036	4068885	54.7
15-19	3.0	3.4	0.0166	73573	364807	3698849	50.3
20-24	4.7	5.2	0.0255	72349	357133	3334043	46.1
25-29	4.4	4.9	0.0241	70504	348273	2976909	42.2
30-34	4.6	5.1	0.0253	68805	339667	2628636	38.2
35-39	4.7	5.3	0.0260	67062	330951	2288969	34.1
40-44	5.6	6.2	0.0305	65319	321608	1958018	30.0
45-49	7.4	8.2	0.0400	63325	310288	1636410	25.8
50-54	11.2	12.5	0.0606	60791	294750	1326122	21.8
55-59	17.1	19.0	0.0907	57110	272599	1031372	18.1
60-64	29.6	32.9	0.1519	51930	239936	758772	14.6
65-69	42.1	46.7	0.2093	44044	197179	518836	11.8
70+	91.0	108.3	1.0000	34827	321658	321658	9.2

Growth rate (70+) = 0.029
Correction for M70+ = 1.071
IMR = 139.5

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.90

Table A33 Sample Registration System-Based Abridged Life Table, West Bengal, Males, 1981-90

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	27.2	85.6	0.0804	100000	93970	5622515	56.2
1-4		11.8	0.0457	91960	356283	5528545	60.1
5-9	2.6	3.0	0.0149	87758	435522	5172262	58.9
10-14	1.4	1.6	0.0078	86451	430579	4736740	54.8
15-19	1.7	2.0	0.0097	85781	426818	4306161	50.2
20-24	2.1	2.4	0.0118	84946	422225	3879343	45.7
25-29	2.2	2.4	0.0121	83944	417170	3457117	41.2
30-34	2.5	2.9	0.0142	82924	411687	3039947	36.7
35-39	3.6	4.1	0.0204	81750	404579	2628260	32.1
40-44	5.5	6.2	0.0307	80081	394269	2223681	27.8
45-49	9.1	10.4	0.0505	77626	378328	1829413	23.6
50-54	14.2	16.2	0.0778	73705	354197	1451084	19.7
55-59	21.5	24.5	0.1152	67974	320287	1096887	16.1
60-64	34.8	39.5	0.1797	60141	273687	776599	12.9
65-69	50.8	57.7	0.2523	49334	215554	502912	10.2
70+	105.4	128.4	1.0000	36888	287358	287358	7.8

Growth rate (70+) = 0.037
Correction for M70+ = 1.072
IMR = 80.4

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.88

Table A34 Sample Registration System-Based Abridged Life Table, West Bengal, Females, 1981-90

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	27.0	77.5	0.0732	100000	94510	5751472	57.5
1-4		13.6	0.0526	92680	357314	5656962	61.0
5-9	3.1	3.5	0.0174	87805	435212	5299648	60.4
10-14	1.6	1.8	0.0088	86280	429504	4864435	56.4
15-19	3.0	3.4	0.0168	85522	424024	4434932	51.9
20-24	2.9	3.3	0.0163	84088	417007	4010907	47.7
25-29	2.9	3.3	0.0163	82715	410199	3593900	43.4
30-34	2.8	3.2	0.0157	81365	403637	3183701	39.1
35-39	3.5	4.0	0.0196	80090	396530	2780064	34.7
40-44	4.7	5.3	0.0263	78522	387451	2383534	30.4
45-49	6.8	7.6	0.0373	76458	375168	1996084	26.1
50-54	11.1	12.4	0.0604	73609	356935	1620916	22.0
55-59	16.4	18.5	0.0883	69165	330560	1263981	18.3
60-64	27.6	31.0	0.1439	63059	292617	933421	14.8
65-69	39.4	44.2	0.1991	53988	243066	640803	11.9
70+	89.9	108.7	1.0000	43238	397737	397737	9.2

Growth rate (70+) = 0.031
Correction for M70+ = 1.077
IMR = 73.2

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.89

Table A35 Sample Registration System-Based Abridged Life Table, All India, Males, 1990-97

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	23.61	79.5	0.0750	100000	94375	5790091	57.9
1-4		9.0	0.0351	92500	361060	5695716	61.6
5-9	2.15	2.5	0.0123	89249	443508	5334656	59.8
10-14	1.27	1.5	0.0073	88154	439173	4891148	55.5
15-19	1.63	1.9	0.0093	87515	435533	4451975	50.9
20-24	2.21	2.5	0.0126	86698	430753	4016441	46.3
25-29	2.57	3.0	0.0146	85603	424881	3585688	41.9
30-34	3.13	3.6	0.0178	84349	417986	3160807	37.5
35-39	3.89	4.5	0.0221	82845	409641	2742821	33.1
40-44	5.52	6.3	0.0312	81011	398728	2333180	28.8
45-49	8.61	9.9	0.0483	78480	382921	1934452	24.6
50-54	13.08	15.0	0.0725	74688	359910	1551531	20.8
55-59	19.68	22.6	0.1071	69276	327835	1191621	17.2
60-64	30.78	35.4	0.1625	61858	284158	863786	14.0
65-69	45.17	51.9	0.2298	51805	229268	579628	11.2
70+	93.29	113.9	1.0000	39902	350360	350360	8.8

Growth rate (70+) = 0.028
Correction for M70+ = 1.062
IMR = 75

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.87

Table A36 Sample Registration System-Based Abridged Life Table, All India, Females, 1990-97

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	26.00	80.9	0.0763	100000	94278	5905224	59.1
1-4		11.5	0.0447	92370	358116	5810947	62.9
5-9	2.70	3.1	0.0156	88238	437754	5452831	61.8
10-14	1.44	1.7	0.0083	86864	432512	5015077	57.7
15-19	2.23	2.6	0.0129	86141	427928	4582565	53.2
20-24	2.96	3.4	0.0171	85031	421525	4154637	48.9
25-29	2.84	3.3	0.0164	83579	414474	3733112	44.7
30-34	2.89	3.4	0.0167	82210	407623	3318638	40.4
35-39	3.18	3.7	0.0183	80839	400495	2911015	36.0
40-44	4.05	4.7	0.0233	79359	392175	2510520	31.6
45-49	5.61	6.5	0.0321	77511	381340	2118344	27.3
50-54	9.17	10.7	0.0519	75025	365383	1737005	23.2
55-59	13.72	16.0	0.0767	71128	342002	1371622	19.3
60-64	23.23	27.0	0.1265	65673	307593	1029620	15.7
65-69	34.88	40.6	0.1841	57365	260417	722027	12.6
70+	81.56	101.4	1.0000	46802	461610	461610	9.9

Growth rate (70+) = 0.026
Correction for M70+ = 1.069
IMR = 76.3

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.86

Table A37 Sample Registration System-Based Abridged Life Table, All India, Males, 1990

Age x - x+n	Unadjusted nMx	Adjusted nmx	nqx	lx	nLx	Tx	Ex
0	24.8	82.8	0.0780	100000	94150	5741202	57.4
1-4		9.6	0.0374	92200	359323	5647052	61.2
5-9	2.3	2.6	0.0131	88754	440856	5287729	59.6
10-14	1.4	1.6	0.0080	87588	436187	4846873	55.3
15-19	1.7	2.0	0.0097	86886	432320	4410686	50.8
20-24	2.4	2.8	0.0137	86042	427262	3978365	46.2
25-29	2.5	2.9	0.0143	84863	421289	3551103	41.8
30-34	3.1	3.6	0.0177	83652	414569	3129815	37.4
35-39	3.9	4.5	0.0222	82175	406323	2715245	33.0
40-44	5.7	6.6	0.0322	80354	395294	2308923	28.7
45-49	9.0	10.3	0.0504	77764	379018	1913628	24.6
50-54	13.2	15.2	0.0731	73843	355722	1534611	20.8
55-59	20.9	24.0	0.1133	68446	322841	1178888	17.2
60-64	28.9	33.2	0.1534	60690	280183	856048	14.1
65-69	47.3	54.4	0.2393	51383	226174	575864	11.2
70+	91.4	111.8	1.0000	39086	349690	349690	8 9

Growth rate (70+) = 0.028
Correction for M70+ = 1.064
IMR = 78

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.87

Table A38 Sample Registration System-Based Abridged Life Table, All India, Females, 1990

Age x - x+n	Unadjusted nMx	Adjusted nmx	nqx	lx	nLx	Tx	ex
0	27.9	86.2	0.0810	100000	93925	5829827	58.3
1-4		12.5	0.0483	91900	355401	5735902	62.4
5-9	2.8	3.3	0.0161	87464	433788	5380502	61.5
10-14	1.4	1.6	0.0081	86051	428513	4946713	57.5
15-19	2.5	2.9	0.0144	85354	423690	4518200	52.9
20-24	3.1	3.6	0.0179	84122	416855	4094509	48.7
25-29	2.8	3.3	0.0161	82620	409763	3677655	44.5
30-34	2.9	3.4	0.0167	81286	403030	3267892	40.2
35-39	3.2	3.7	0.0184	79926	395949	2864862	35.8
40-44	4.4	5.1	0.0253	78453	387312	2468913	31.5
45-49	6.3	7.3	0.0360	76472	375481	2081601	27.2
50-54	9.0	10.5	0.0510	73721	359207	1706120	23.1
55-59	14.4	16.7	0.0804	69962	335754	1346913	19.3
60-64	23.0	26.7	0.1253	64340	301538	1011159	15.7
65-69	37.8	44.0	0.1980	56275	253520	709620	12.6
70+	79.4	99.0	1.0000	45132	456100	456100	10.1

Growth rate (70+) = 0.026
Correction for M70+ = 1.072
IMR = 81

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.86

Table A39 Sample Registration System-Based Abridged Life Table, All India, Males, 1991

Age x - x+n	Unadjusted nMx	Adjusted nmx	nqx	lx	nLx	Tx	ex
0	25.6	86.2	0.0810	100000	93925	5665556	56.7
1-4		9.7	0.0378	91900	358056	5571631	60.6
5-9	2.6	3.0	0.0148	88429	438868	5213575	59.0
10-14	1.4	1.6	0.0080	87118	433843	4774707	54.8
15-19	1.8	2.1	0.0103	86420	429875	4340864	50.2
20-24	2.5	2.9	0.0143	85530	424601	3910990	45.7
25-29	2.9	3.3	0.0165	84310	418067	3486389	41.4
30-34	3.3	3.8	0.0188	82917	410688	3068322	37.0
35-39	4.2	4.8	0.0239	81359	401943	2657634	32.7
40-44	5.1	5.9	0.0289	79418	391356	2255691	28.4
45-49	9.1	10.5	0.0510	77124	375794	1864335	24.2
50-54	13.4	15.4	0.0742	73193	352398	1488541	20.3
55-59	21.2	24.4	0.1148	67766	319373	1136143	16.8
60-64	33.0	37.9	0.1732	59983	273940	816770	13.6
65-69	45.9	52.8	0.2331	49592	219068	542831	10.9
70+	96.5	117.5	1.0000	38035	323763	323763	8.5

Growth rate (70+) = 0.028
Correction for M70+ = 1.059
IMR = 81

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.87

Table A40 Sample Registration System-Based Abridged Life Table, All India, Females, 1991

Age x - x+n	Unadjusted nMx	Adjusted nmx	nqx	lx	nLx	Tx	ex
0	27.5	85.1	0.0800	100000	94000	5792618	57.9
1-4		12.3	0.0475	92000	355971	5698618	61.9
5-9	2.9	3.4	0.0167	87626	434466	5342647	61.0
10-14	1.6	1.9	0.0093	86161	428809	4908181	57.0
15-19	2.5	2.9	0.0144	85363	423735	4479372	52.5
20-24	3.1	3.6	0.0179	84131	416899	4055637	48.2
25-29	3.3	3.8	0.0190	82628	409216	3638738	44.0
30-34	2.9	3.4	0.0167	81058	401903	3229521	39.8
35-39	3.6	4.2	0.0207	79703	394387	2827619	35.5
40-44	3.9	4.5	0.0224	78052	385885	2433232	31.2
45-49	5.7	6.6	0.0326	76302	375292	2047347	26.8
50-54	9.1	10.6	0.0515	73815	359561	1672055	22.7
55-59	13.8	16.0	0.0771	70010	336549	1312494	18.7
60-64	24.0	27.9	0.1304	64610	301979	975945	15.1
65-69	37.5	43.6	0.1966	56182	253299	673966	12.0
70+	86.8	107.3	1.0000	45137	420667	420667	9.3

Growth rate (70+) = 0.026
Correction for M70+ = 1.063
IMR = 80

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.86

Table A41 Sample Registration System-Based Abridged Life Table, All India, Males, 1992

Age x - x+n	Unadjusted nMx	Adjusted nmx	nqx	lx	nLx	Tx	ex
0	24.9	84.0	0.0790	100000	94075	5711058	57.1
1-4		9.4	0.0367	92100	359094	5616983	61.0
5-9	2.4	2.8	0.0137	88716	440542	5257888	59.3
10-14	1.3	1.5	0.0074	87501	435876	4817346	55.1
15-19	1.9	2.2	0.0109	86849	431889	4381470	50.4
20-24	2.3	2.6	0.0131	85906	426711	3949581	46.0
25-29	2.4	2.8	0.0137	84778	420988	3522870	41.6
30-34	3.2	3.7	0.0182	83617	414275	3101882	37.1
35-39	3.9	4.5	0.0222	82093	405916	2687607	32.7
40-44	5.6	6.4	0.0317	80273	395011	2281691	28.4
45-49	9.3	10.7	0.0521	77731	378538	1886680	24.3
50-54	13.1	15.1	0.0726	73684	355056	1508142	20.5
55-59	20.1	23.1	0.1092	68338	323033	1153086	16.9
60-64	32.4	37.2	0.1703	60875	278450	830053	13.6
65-69	47.4	54.5	0.2398	50505	222253	551602	10.9
70+	95.7	116.6	1.0000	38396	329349	329349	8.6

Growth rate (70+) = 0.028
Correction for M70+ = 1.060
IMR = 79

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.87

Table A42 Sample Registration System-Based Abridged Life Table, All India, Females, 1992

Age x - x+n	Unadjusted nMx	Adjusted nmx	nqx	lx	nLx	Tx	ex
0	28.2	85.1	0.0800	100000	94000	5718354	57.2
1-4		13.1	0.0507	92000	355167	5624354	61.1
5-9	3.3	3.8	0.0190	87333	432518	5269187	60.3
10-14	1.6	1.9	0.0093	85674	426386	4836669	56.5
15-19	2.6	3.0	0.0150	84881	421219	4410283	52.0
20-24	3.3	3.8	0.0190	83607	414063	3989064	47.7
25-29	3.0	3.5	0.0173	82018	406546	3575000	43.6
30-34	3.2	3.7	0.0184	80600	399286	3168454	39.3
35-39	3.6	4.2	0.0207	79114	391475	2769168	35.0
40-44	4.5	5.2	0.0258	77476	382376	2377693	30.7
45-49	5.6	6.5	0.0320	75475	371329	1995317	26.4
50-54	9.7	11.3	0.0548	73057	355267	1623988	22.2
55-59	15.4	17.9	0.0857	69050	330455	1268722	18.4
60-64	24.6	28.6	0.1335	63132	294595	938266	14.9
65-69	40.4	47.0	0.2102	54706	244780	643672	11.8
70+	87.7	108.3	1.0000	43207	398891	398891	9.2

Growth rate (70+) = 0.026
Correction for M70+ = 1.062
IMR = 80

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.86

Table A43 Sample Registration System-Based Abridged Life Table, All India, Males, 1993

Age x - x+n	Unadjusted nMx	Adjusted nmx	nqx	lx	nLx	Tx	ex
0	22.7	77.2	0.0730	100000	94525	5829799	58.3
1-4		8.5	0.0331	92700	362354	5735274	61.9
5-9	2.0	2.3	0.0114	89629	445583	5372919	59.9
10-14	1.2	1.4	0.0069	88605	441500	4927336	55.6
15-19	1.6	1.8	0.0092	87996	437964	4485836	51.0
20-24	2.1	2.4	0.0120	87190	433336	4047872	46.4
25-29	2.3	2.6	0.0131	86144	427893	3614536	42.0
30-34	2.9	3.3	0.0165	85013	421552	3186644	37.5
35-39	4.0	4.6	0.0227	83608	413288	2765092	33.1
40-44	5.1	5.9	0.0289	81708	402637	2351804	28.8
45-49	8.0	9.2	0.0449	79347	387821	1949167	24.6
50-54	13.2	15.2	0.0731	75781	365058	1561346	20.6
55-59	20.6	23.7	0.1118	70242	331583	1196288	17.0
60-64	30.7	35.3	0.1621	62391	286666	864704	13.9
65-69	46.2	53.1	0.2344	52275	230743	578039	11.1
70+	94.5	115.2	1.0000	40022	347295	347295	8.7

Growth rate (70+) = 0.028
Correction for M70+ = 1.061
IMR = 73

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.87

Table A44 Sample Registration System-Based Abridged Life Table, All India, Females, 1993

Age x - x+n	Unadjusted nMx	Adjusted nmx	nqx	lx	nLx	Tx	ex
0	24.8	79.5	0.0750	100000	94375	5946299	59.5
1-4		10.5	0.0406	92500	359660	5851924	63.3
5-9	2.5	2.9	0.0144	88740	440498	5492264	61.9
10-14	1.6	1.9	0.0093	87459	435273	5051766	57.8
15-19	2.2	2.6	0.0127	86650	430495	4616493	53.3
20-24	3.0	3.5	0.0173	85548	424044	4185998	48.9
25-29	3.0	3.5	0.0173	84069	416711	3761954	44.7
30-34	2.7	3.1	0.0156	82615	409860	3345243	40.5
35-39	2.8	3.3	0.0161	81329	403360	2935383	36.1
40-44	3.9	4.5	0.0224	80015	395592	2532022	31.6
45-49	5.3	6.2	0.0303	78221	385173	2136430	27.3
50-54	9.0	10.5	0.0510	75848	369570	1751257	23.1
55-59	14.4	16.7	0.0804	71980	345440	1381687	19.2
60-64	24.2	28.1	0.1315	66196	309226	1036247	15.7
65-69	34.6	40.2	0.1828	57495	261201	727020	12.6
70+	81.1	100.9	1.0000	46986	465820	465820	9.9

Growth rate (70+) = 0.026
Correction for M70+ = 1.070
IMR = 75

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.86

Table A45 Sample Registration System-Based Abridged Life Table, All India, Males, 1994

Age x - x+n	Unadjusted nMx	Adjusted nmx	nqx	lx	nLx	Tx	ex
0	23.6	79.5	0.0750	100000	94375	5800343	58.0
1-4		9.0	0.0351	92500	361067	5705968	61.7
5-9	1.9	2.2	0.0109	89252	443835	5344901	59.9
10-14	1.2	1.4	0.0069	88282	439895	4901067	55.5
15-19	1.6	1.8	0.0092	87676	436371	4461172	50.9
20-24	2.1	2.4	0.0120	86873	431760	4024801	46.3
25-29	2.7	3.1	0.0154	85831	425850	3593041	41.9
30-34	3.2	3.7	0.0182	84509	418696	3167191	37.5
35-39	3.7	4.3	0.0210	82969	410482	2748495	33.1
40-44	5.5	6.3	0.0311	81223	399799	2338014	28.8
45-49	8.5	9.8	0.0477	78696	384098	1938215	24.6
50-54	12.9	14.8	0.0715	74943	361323	1554117	20.7
55-59	19.6	22.5	0.1066	69586	329378	1192794	17.1
60-64	31.2	35.9	0.1646	62165	285252	863416	13.9
65-69	45.1	51.8	0.2295	51936	229885	578164	11.1
70+	94.2	114.9	1.0000	40019	348279	348279	8.7

Growth rate (70+) = 0.028
Correction for M70+ = 1.061
iMR = 75

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.87

Table A46 Sample Registration System-Based Abridged Life Table, All India, Females, 1994

Age x - x+n	Unadjusted nMx	Adjusted nmx	nqx	lx	nLx	Tx	ex
0	24.2	77.2	0.0730	100000	94525	5997584	60.0
1-4		10.3	0.0401	92700	360587	5903059	63.7
5-9	2.3	2.7	0.0133	88986	441976	5542472	62.3
10-14	1.3	1.5	0.0075	87804	437368	5100495	58.1
15-19	2.0	2.3	0.0116	87143	433197	4663127	53.5
20-24	3.0	3.5	0.0173	86136	426955	4229930	49.1
25-29	2.8	3.3	0.0161	84646	419814	3802975	44.9
30-34	3.1	3.6	0.0179	83279	412678	3383161	40.6
35-39	3.4	4.0	0.0196	81792	404957	2970482	36.3
40-44	4.0	4.7	0.0230	80191	396346	2565525	32.0
45-49	5.7	6.6	0.0326	78347	385352	2169179	27.7
50-54	8.9	10.3	0.0504	75793	369409	1783827	23.5
55-59	12.3	14.3	0.0690	71970	347429	1414418	19.7
60-64	22.6	26.3	0.1233	67001	314354	1066989	15.9
65-69	31.5	36.6	0.1678	58740	269064	752634	12.8
70+	81.3	101.1	1.0000	48885	483570	483570	9.9

Growth rate (70+) = 0.026
Correction for M70+ = 1.069
IMR = 73

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.86

Table A47 Sample Registration System-Based Abridged Life Table, All India, Males, 1995

Age x - x+n	Unadjusted nMx	Adjusted nmx	nqx	lx	nLx	Tx	ex
0	23.2	77.2	0.0730	100000	94525	5860652	58.6
1-4		9.1	0.0354	92700	361764	5766127	62.2
5-9	2.2	2.5	0.0126	89414	444262	5404363	60.4
10-14	1.3	1.5	0.0074	88291	439810	4960101	56.2
15-19	1.7	2.0	0.0097	87633	436037	4520291	51.6
20-24	2.1	2.4	0.0120	86781	431305	4084254	47.1
25-29	2.6	3.0	0.0148	85740	425523	3652949	42.6
30-34	3.1	3.6	0.0177	84469	418614	3227426	38.2
35-39	3.7	4.3	0.0210	82977	410521	2808812	33.9
40-44	5.5	6.3	0.0311	81231	399837	2398291	29.5
45-49	8.1	9.3	0.0455	78703	384566	1998454	25.4
50-54	12.0	13.8	0.0667	75123	363095	1613888	21.5
55-59	17.5	20.1	0.0958	70115	333789	1250793	17.8
60-64	28.0	32.2	0.1489	63401	293397	917004	14.5
65-69	41.6	47.8	0.2136	53958	240983	623607	11.6
70+	90.6	110.9	1.0000	42435	382624	382624	9.0

Growth rate (70+) = 0.028
Correction for M70+ = 1.065
IMR = 73

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.87

Table A48 Sample Registration System-Based Abridged Life Table, All India, Females, 1995

Age x - x+n	Unadjusted nMx	Adjusted nmx	nqx	lx	nLx	Tx	ex
0	25.3	80.6	0.0760	100000	94300	6018174	60.2
1-4		10.8	0.0419	92400	358964	5923874	64.1
5-9	2.7	3.1	0.0156	88532	439215	5564910	62.9
10-14	1.4	1.6	0.0081	87153	434001	5125695	58.8
15-19	2.0	2.3	0.0116	86447	429736	4691694	54.3
20-24	2.7	3.1	0.0156	85448	423911	4261958	49.9
25-29	2.6	3.0	0.0150	84117	417429	3838047	45.6
30-34	2.7	3.1	0.0156	82855	411047	3420618	41.3
35-39	3.1	3.6	0.0179	81564	404179	3009571	36.9
40-44	3.8	4.4	0.0219	80107	396160	2605392	32.5
45-49	5.2	6.0	0.0298	78357	385950	2209232	28.2
50-54	8.5	9.9	0.0482	76023	370950	1823282	24.0
55-59	11.8	13.7	0.0663	72357	349786	1452332	20.1
60-64	21.5	25.0	0.1176	67557	317917	1102547	16.3
65-69	30.5	35.5	0.1629	59609	273774	784629	13.2
70+	78.268	97.7	1.0000	49900	510855	510855	10.2

Growth rate (70+) = 0.026
Correction for M70+ = 1.073
IMR = 76

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.86

Table A49 Sample Registration System-Based Abridged Life Table, All India, Males, 1996

Age x - x+n	Unadjusted nMx	Adjusted nmx	nqx	lx	nLx	Tx	ex
0	22.2	75.0	0.0710	100000	94675	5881247	58.8
1-4		8.4	0.0330	92900	363173	5786572	62.3
5-9	2.0	2.3	0.0114	89836	446612	5423398	60.4
10-14	1.2	1.4	0.0069	88809	442519	4976786	56.0
15-19	1.4	1.6	0.0080	88199	439226	4534267	51.4
20-24	2.0	2.3	0.0114	87492	434960	4095040	46.8
25-29	2.5	2.9	0.0143	86492	429375	3660081	42.3
30-34	2.9	3.3	0.0165	85258	422768	3230705	37.9
35-39	3.9	4.5	0.0222	83849	414598	2807938	33.5
40-44	5.7	6.6	0.0322	81990	403345	2393339	29.2
45-49	7.9	9.1	0.0444	79348	387932	1989994	25.1
50-54	12.7	14.6	0.0704	75825	365777	1602062	21.1
55-59	17.9	20.6	0.0978	70486	335187	1236285	17.5
60-64	29.7	34.1	0.1573	63589	292945	901097	14.2
65-69	41.5	47.7	0.2131	53589	239395	608152	11.3
70+	93.7	114.4	1.0000	42169	368757	368757	8.7

Growth rate (70+) = 0.028
Correction for M70+ = 1.062
IMR = 71

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.87

Table A50 Sample Registration System-Based Abridged Life Table, All India, Females, 1996

Age x - x+n	Unadjusted nMx	Adjusted nmx	nqx	lx	nLx	Tx	ex
0	25.6	77.2	0.0730	100000	94525	5966199	59.7
1-4		12.0	0.0465	92700	358950	5871674	63.3
5-9	2.7	3.1	0.0156	88391	438513	5512723	62.4
10-14	1.4	1.6	0.0081	87014	433308	5074210	58.3
15-19	1.9	2.2	0.0110	86309	429174	4640902	53.8
20-24	2.7	3.1	0.0156	85361	423480	4211728	49.3
25-29	2.5	2.9	0.0144	84031	417125	3788248	45.1
30-34	2.8	3.3	0.0161	82819	410750	3371123	40.7
35-39	2.8	3.3	0.0161	81481	404117	2960373	36.3
40-44	3.9	4.5	0.0224	80166	396335	2556256	31.9
45-49	5.3	6.2	0.0303	78368	385896	2159921	27.6
50-54	9.0	10.5	0.0510	75990	370263	1774026	23.3
55-59	13.6	15.8	0.0761	72115	346863	1403763	19.5
60-64	23.8	27.7	0.1294	66630	311592	1056900	15.9
65-69	32.4	37.7	0.1722	58007	265068	745308	12.8
70+	80.324	100.0	1.0000	48021	480239	480239	10.0

Growth rate (70+) = 0.026
Correction for M70+ = 1.071
IMR = 73

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.86

Table A51 Sample Registration System-Based Abridged Life Table, All India, Males, 1997

Age x - x+n	Unadjusted nMx	Adjusted nmx	nqx	lx	nLx	Tx	ex
0	21.8	73.9	0.0700	100000	94750	5839158	58.4
1-4		8.3	0.0324	93000	363703	5744408	61.8
5-9	1.8	2.0	0.0102	89983	447630	5380705	59.8
10-14	1.1	1.3	0.0065	89069	443899	4933075	55.4
15-19	1.4	1.6	0.0077	88491	440742	4489176	50.7
20-24	2.2	2.5	0.0125	87806	436276	4048434	46.1
25-29	2.6	3.0	0.0150	86704	430262	3612158	41.7
30-34	3.4	3.9	0.0191	85401	422932	3181896	37.3
35-39	3.9	4.4	0.0219	83772	414274	2758964	32.9
40-44	6.0	6.9	0.0338	81938	402756	2344690	28.6
45-49	9.0	10.4	0.0505	79165	385832	1941934	24.5
50-54	14.2	16.3	0.0783	75168	361131	1556102	20.7
55-59	19.7	22.6	0.1070	69284	327887	1194971	17.2
60-64	32.3	37.2	0.1701	61870	283046	867084	14.0
65-69	46.3	53.3	0.2350	51348	226574	584038	11.4
70+	89.7	109.9	1.0000	39281	357465	357465	9.1

Growth rate (70+) = 0.028
Correction for M70+ = 1.066
IMR = 70

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.87

Table A52 Sample Registration System-Based Abridged Life Table, All India, Females, 1997

Age x - x+n	Unadjusted nMx	Adjusted nmx	nqx	lx	nLx	Tx	ex
0	24.5	76.1	0.0720	100000	94600	5991592	59.9
1-4		11.0	0.0425	92800	360346	5896992	63.5
5-9	2.4	2.8	0.0138	88853	441201	5536646	62.3
10-14	1.2	1.4	0.0070	87627	436606	5095445	58.1
15-19	2.1	2.5	0.0124	87015	432374	4658839	53.5
20-24	2.8	3.2	0.0161	85935	426222	4226465	49.2
25-29	2.7	3.2	0.0157	84554	419447	3800243	44.9
30-34	2.8	3.3	0.0164	83225	412711	3380796	40.6
35-39	2.9	3.4	0.0168	81860	405851	2968085	36.3
40-44	4.0	4.7	0.0231	80481	397752	2562234	31.8
45-49	5.8	6.7	0.0329	78620	386634	2164482	27.5
50-54	10.2	11.8	0.0574	76033	369250	1777848	23.4
55-59	14.1	16.3	0.0785	71667	344269	1408598	19.7
60-64	22.1	25.7	0.1208	66041	310253	1064329	16.1
65-69	34.4	40.0	0.1816	58060	263938	754076	13.0
70+	77.6	96.9	1.0000	47515	490138	490138	10.3

Growth rate (70+) = 0.026
Correction for M70+ = 1.074
IMR = 72

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.86

Table A53 Sample Registration System-Based Abridged Life Table, Andhra Pradesh, Males, 1990-97

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	19.45	73.9	0.0700	100000	94750	5648658	56.5
1-4		5.4	0.0212	93000	366578	5553908	59.7
5-9	1.58	2.1	0.0106	91028	452726	5187330	57.0
10-14	1.28	1.7	0.0086	90062	448372	4734604	52.6
15-19	1.79	2.4	0.0120	89287	443754	4286232	48.0
20-24	2.39	3.2	0.0160	88215	437545	3842478	43.6
25-29	2.44	3.3	0.0164	86803	430464	3404933	39.2
30-34	3.65	4.9	0.0243	85383	421721	2974469	34.8
35-39	4.02	5.4	0.0268	83305	410944	2552749	30.6
40-44	6.20	8.4	0.0410	81072	397047	2141805	26.4
45-49	9.02	12.2	0.0591	77747	377244	1744758	22.4
50-54	13.00	17.6	0.0841	73151	350370	1367514	18.7
55-59	21.07	28.5	0.1329	66997	312728	1017144	15.2
60-64	34.28	46.3	0.2076	58094	260325	704415	12.1
65-69	49.30	66.6	0.2856	46036	197313	444091	9.6
70+	95.41	133.3	1.0000	32890	246778	246778	7.5

Growth rate (70+) = 0.020
Correction for M70+ = 1.034
IMR = 70

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.74

Table A54 Sample Registration System-Based Abridged Life Table, Andhra Pradesh, Females, 1990-97

Age $x - x+n$	Unadjusted $_nM_x$	Adjusted $_nm_x$	$_nq_x$	l_x	$_nL_x$	T_x	e_x
0	17.98	67.3	0.0641	100000	95193	5826955	58.3
1-4		5.2	0.0207	93590	369034	5731763	61.2
5-9	1.57	2.3	0.0116	91653	455601	5362729	58.5
10-14	1.25	1.9	0.0092	90587	450841	4907127	54.2
15-19	2.46	3.7	0.0182	89749	444661	4456287	49.7
20-24	2.42	3.6	0.0179	88115	436627	4011626	45.5
25-29	2.51	3.7	0.0185	86536	428666	3574999	41.3
30-34	2.57	3.8	0.0190	84931	420626	3146334	37.0
35-39	3.18	4.7	0.0235	83320	411711	2725708	32.7
40-44	4.04	6.0	0.0297	81365	400778	2313996	28.4
45-49	5.98	8.9	0.0437	78947	386116	1913218	24.2
50-54	9.83	14.7	0.0707	75500	364148	1527102	20.2
55-59	13.71	20.5	0.0974	70159	333721	1162953	16.6
60-64	23.44	35.0	0.1609	63329	291174	829232	13.1
65-69	38.52	57.5	0.2513	53140	232315	538059	10.1
70+	86.59	130.1	1.0000	39786	305743	305743	7.7

Growth rate (70+) = 0.004
Correction for M70+ = 1.007
IMR = 64.1

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.67

Table A55 Sample Registration System-Based Abridged Life Table, Assam, Males, 1990-97

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	28.67	85.7	0.0805	100000	93963	5433444	54.3
1-4		13.6	0.0523	91950	354572	5339482	58.1
5-9	3.51	4.0	0.0197	87140	431400	4984909	57.2
10-14	1.70	1.9	0.0096	85420	425047	4553510	53.3
15-19	1.68	1.9	0.0095	84599	420988	4128463	48.8
20-24	2.21	2.5	0.0125	83796	416366	3707475	44.2
25-29	3.03	3.4	0.0171	82750	410222	3291109	39.8
30-34	4.39	5.0	0.0247	81339	401682	2880888	35.4
35-39	4.69	5.3	0.0263	79334	391456	2479206	31.3
40-44	6.57	7.5	0.0366	77248	379167	2087750	27.0
45-49	10.89	12.4	0.0600	74418	360929	1708583	23.0
50-54	17.26	19.6	0.0935	69953	333419	1347654	19.3
55-59	24.02	27.3	0.1277	63415	296821	1014235	16.0
60-64	38.92	44.2	0.1991	55314	249034	717414	13.0
65-69	54.21	61.6	0.2669	44300	191937	468380	10.6
70+	99.29	117.5	1.0000	32475	276443	276443	8.5

Growth rate (70+) = 0.020
Correction for M70+ = 1.041
IMR = 80.5

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.88

Table A56 Sample Registration System-Based Abridged Life Table, Assam, Females, 1990-97

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	28.32	80.1	0.0756	100000	94330	5194658	51.9
1-4		14.6	0.0560	92440	355515	5100328	55.2
5-9	4.39	6.0	0.0296	87260	429841	4744813	54.4
10-14	2.11	2 9	0.0143	84676	420348	4314972	51.0
15-19	2.34	3.2	0.0159	83463	414002	3894624	46.7
20-24	4.17	5.7	0.0281	82138	404910	3480621	42.4
25-29	3.95	5.4	0.0267	79826	393807	3075712	38.5
30-34	4.53	6.2	0.0306	77697	382546	2681904	34.5
35-39	4.79	6.6	0.0323	75322	370531	2299358	30.5
40-44	6.41	8.8	0.0429	72891	356628	1928828	26.5
45-49	7.47	10.2	0.0499	69761	340102	1572199	22.5
50-54	14.75	20.2	0.0962	66280	315464	1232098	18.6
55-59	20.20	27.7	0.1294	59906	280151	916633	15.3
60-64	30.00	41.1	0.1863	52155	236480	636482	12.2
65-69	47.51	65.1	0.2799	42437	182496	400002	9.4
70+	98.86	140.5	1.0000	30561	217506	217506	7.1

Growth rate (70+) = 0.024
Correction for M70+ = 1.038
IMR = 75.6

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.73

Table A57 Sample Registration System-Based Abridged Life Table, Bihar, Males, 1990-97

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	24.20	74.8	0.0708	100000	94690	5625038	56.3
1-4		10.9	0.0425	92920	360832	5530348	59.5
5-9	3.14	4.0	0.0197	88975	440494	5169516	58.1
10-14	1.54	2.0	0.0097	87223	433994	4729022	54.2
15-19	1.74	2.2	0.0110	86375	429507	4295028	49.7
20-24	2.26	2.9	0.0142	85428	424107	3865521	45.2
25-29	2.60	3.3	0.0163	84215	417641	3441414	40.9
30-34	3.39	4.3	0.0212	82842	409807	3023772	36.5
35-39	3.59	4.5	0.0224	81081	400859	2613965	32.2
40-44	5.67	7.2	0.0353	79262	389322	2213106	27.9
45-49	8.74	11.1	0.0538	76467	372039	1823784	23.9
50-54	12.77	16.2	0.0777	72349	347689	1451745	20.1
55-59	20.22	25.6	0.1203	66727	313566	1104056	16.5
60-64	30.87	39.1	0.1780	58700	267377	790490	13.5
65-69	44.29	56.1	0.2458	48251	211599	523113	10.8
70+	90.48	116.8	1.0000	36389	311514	311514	8.6

Growth rate (70+) = 0.010
Correction for M70+ = 1.020
IMR = 70.8

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.79

Table A58 Sample Registration System-Based Abridged Life Table, Bihar, Females, 1990-97

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	27.95	75.9	0.0718	100000	94615	5465816	54.7
1-4		15.2	0.0585	92820	356358	5371201	57.9
5-9	4.25	5.4	0.0266	87394	431164	5014843	57.4
10-14	2.01	2.5	0.0126	85072	422678	4583679	53.9
15-19	2.60	3.3	0.0163	83999	416563	4161001	49.5
20-24	3.67	4.6	0.0230	82626	408384	3744438	45.3
25-29	3.67	4.6	0.0229	80727	399008	3336054	41.3
30-34	3.58	4.5	0.0224	78876	389961	2937046	37.2
35-39	4.64	5.9	0.0290	77109	379959	2547085	33.0
40-44	5.53	7.0	0.0344	74875	367932	2167126	28.9
45-49	7.45	9.4	0.0461	72298	353165	1799194	24.9
50-54	12.00	15.2	0.0732	68968	332227	1446029	21.0
55-59	17.69	22.4	0.1060	63923	302666	1113802	17.4
60-64	29.16	36.9	0.1689	57144	261583	811136	14.2
65-69	40.51	51.3	0.2272	47490	210469	549553	11.6
70+	84.85	108.2	1.0000	36698	339084	339084	9.2

Growth rate (70+) = 0.004
Correction for M70+ = 1.008
IMR = 71.8

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.79

Table A59 Sample Registration System-Based Abridged Life Table, Gujarat, Males, 1990-97

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	21.18	66.8	0.0636	100000	95230	5922470	59.2
1-4		9.3	0.0362	93640	365236	5827240	62.2
5-9	1.68	1.8	0.0092	90249	449177	5462004	60.5
10-14	1.08	1.2	0.0059	89422	445780	5012826	56.1
15-19	1.37	1.5	0.0075	88891	442791	4567046	51.4
20-24	2.00	2.2	0.0109	88226	438717	4124255	46.7
25-29	2.41	2.6	0.0132	87261	433434	3685538	42.2
30-34	2.81	3.1	0.0153	86113	427266	3252104	37.8
35-39	4.38	4.8	0.0238	84794	418929	2824838	33.3
40-44	5.66	6.2	0.0306	82778	407549	2405910	29.1
45-49	9.32	10.2	0.0499	80242	391195	1998361	24.9
50-54	13.33	14.6	0.0706	76236	367718	1607166	21.1
55-59	20.03	22.0	0.1043	70851	335779	1239448	17.5
60-64	32.36	35.6	0.1633	63460	291398	903669	14.2
65-69	45.20	49.7	0.2209	53099	236169	612271	11.5
70+	92.11	110.0	1.0000	41369	376102	376102	9.1

Growth rate (70+) = 0.035
Correction for M70+ = 1.087
IMR = 63.6

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.91

Table A60 Sample Registration System-Based Abridged Life Table, Gujarat, Females, 1990-97

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	23.19	68.7	0.0653	100000	95103	6227981	62.3
1-4		11.3	0.0437	93470	362644	6132878	65.6
5-9	1.88	2.1	0.0104	89384	444605	5770234	64.6
10-14	1.11	1.2	0.0061	88458	440929	5325629	60.2
15-19	1.51	1.7	0.0083	87914	437736	4884700	55.6
20-24	2.56	2.8	0.0141	87180	432824	4446964	51.0
25-29	2.80	3.1	0.0154	85949	426431	4014140	46.7
30-34	2.45	2.7	0.0135	84623	420259	3587709	42.4
35-39	2.76	3.1	0.0152	83480	414221	3167450	37.9
40-44	3.60	4.0	0.0198	82208	406970	2753229	33.5
45-49	5.45	6.1	0.0298	80579	396894	2346259	29.1
50-54	7.32	8.1	0.0399	78178	383099	1949365	24.9
55-59	12.88	14.3	0.0691	75062	362344	1566266	20.9
60-64	20.64	22.9	0.1085	69876	330431	1203922	17.2
65-69	31.14	34.6	0.1592	62296	286685	873491	14.0
70+	73.36	89.3	1.0000	52377	586806	586806	11.2

Growth rate (70+) = 0.029
Correction for M70+ = 1.095
IMR = 65.3

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.90

Table A61 Sample Registration System-Based Abridged Life Table, Haryana, Males, 1990-97

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	19.75	69.3	0.0659	100000	95058	6168707	61.7
1-4		6.9	0.0271	93410	366687	6073650	65.0
5-9	1.36	1.5	0.0074	90882	452736	5706963	62.8
10-14	1.13	1.2	0.0061	90213	449677	5254227	58.2
15-19	1.66	1.8	0.0090	89658	446273	4804550	53.6
20-24	2.21	2.4	0.0119	88851	441604	4358278	49.1
25-29	2.70	2.9	0.0146	87790	435752	3916674	44.6
30-34	3.39	3.7	0.0183	86510	428604	3480922	40.2
35-39	4.12	4.5	0.0222	84931	419950	3052317	35.9
40-44	5.65	6.1	0.0303	83049	408963	2632367	31.7
45-49	6.28	6.8	0.0336	80536	395922	2223404	27.6
50-54	9.08	9.9	0.0482	77832	379788	1827482	23.5
55-59	16.55	18.0	0.0861	74083	354470	1447694	19.5
60-64	22.30	24.2	0.1143	67705	319183	1093224	16.1
65-69	35.17	38.2	0.1745	59968	273679	774041	12.9
70+	80.16	98.9	1.0000	49504	500362	500362	10.1

Growth rate (70+) = 0.044
Correction for M70+ = 1.135
IMR = 65.9

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.92

Table A62 Sample Registration System-Based Abridged Life Table, Haryana, Females, 1990-97

Age x - $x+n$	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	25.29	77.2	0.0730	100000	94525	6199786	62.0
1-4		11.6	0.0451	92700	359310	6105261	65.9
5-9	1.77	2.0	0.0099	88522	440419	5745951	64.9
10-14	1.13	1.3	0.0063	87646	436840	5305532	60.5
15-19	2.18	2.5	0.0122	87090	432800	4868692	55.9
20-24	2.50	2.8	0.0139	86030	427152	4435892	51.6
25-29	2.28	2.6	0.0127	84831	421451	4008741	47.3
30-34	2.21	2.5	0.0124	83750	416160	3587289	42.8
35-39	2.38	2.7	0.0133	82714	410826	3171129	38.3
40-44	3.00	3.4	0.0167	81616	404670	2760303	33.8
45-49	4.09	4.6	0.0227	80252	396706	2355633	29.4
50-54	6.69	7.5	0.0369	78430	384921	1958927	25.0
55-59	9.71	10.9	0.0531	75538	367661	1574006	20.8
60-64	19.81	22.3	0.1054	71526	338783	1206345	16.9
65-69	29.99	33.7	0.1554	63987	295074	867561	13.6
70+	72.39	94.4	1.0000	54043	572488	572488	10.6

Growth rate (70+) = 0.047
Correction for M70+ = 1.161
IMR = 73

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.89

Table A63 Sample Registration System-Based Abridged Life Table, Himachal Pradesh, Males, 1990-97

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	17.08	69.2	0.0658	100000	95065	6270432	62.7
1-4		3.7	0.0146	93420	369930	6175367	66.1
5-9	1.01	1.0	0.0050	92056	459127	5805438	63.1
10-14	0.68	0.7	0.0034	91594	457201	5346311	58.4
15-19	1.54	1.5	0.0077	91286	454679	4889110	53.6
20-24	2.78	2.8	0.0138	90586	449803	4434431	49.0
25-29	2.92	2.9	0.0145	89335	443440	3984627	44.6
30-34	3.13	3.1	0.0155	88041	436785	3541187	40.2
35-39	3.57	3.6	0.0177	86673	429529	3104402	35.8
40-44	5.88	5.9	0.0290	85138	419520	2674873	31.4
45-49	6.77	6.8	0.0333	82670	406468	2255353	27.3
50-54	13.41	13.4	0.0649	79917	386627	1848885	23.1
55-59	15.28	15.3	0.0736	74733	359915	1462258	19.6
60-64	26.87	26.9	0.1259	69233	324373	1102343	15.9
65-69	41.30	41.3	0.1872	60516	274267	777970	12.9
70+	89.66	97.7	1.0000	49190	503703	503703	10.2

Growth rate (70+) = 0.031
Correction for M70+ = 1.089
IMR = 65.8

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 1.00

Table A64 Sample Registration System-Based Abridged Life Table, Himachal Pradesh, Females, 1990-97

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	17.35	67.3	0.0641	100000	95193	6556626	65.6
1-4		4.5	0.0177	93590	369797	6461434	69.0
5-9	1.67	1.7	0.0083	91931	457748	6091637	66.3
10-14	0.84	0.8	0.0042	91168	454887	5633889	61.8
15-19	1.32	1.3	0.0066	90786	452437	5179002	57.0
20-24	2.68	2.7	0.0133	90188	447937	4726565	52.4
25-29	1.64	1.6	0.0082	88986	443110	4278628	48.1
30-34	1.88	1.9	0.0094	88258	439226	3835518	43.5
35-39	2.52	2.5	0.0125	87432	434425	3396292	38.8
40-44	2.57	2.6	0.0128	86338	428932	2961867	34.3
45-49	5.62	5.6	0.0277	85235	420274	2532935	29.7
50-54	10.00	10.0	0.0488	82875	404267	2112662	25.5
55-59	12.61	12.6	0.0611	78832	382114	1708394	21.7
60-64	18.44	18.4	0.0882	74013	353755	1326280	17.9
65-69	28.76	28.8	0.1342	67489	314805	972526	14.4
70+	76.14	88.8	1.0000	58433	657721	657721	11.3

Growth rate (70+) = 0.044
Correction for M70+ = 1.167
IMR = 64.1

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 1.00

Table A65 Sample Registration System-Based Abridged Life Table, Karnataka, Males, 1990-97

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	19.80	71.5	0.0679	100000	94908	6094275	60.9
1-4		6.4	0.0252	93210	366392	5999367	64.4
5-9	1.41	1.5	0.0073	90865	452679	5632975	62.0
10-14	0.91	0.9	0.0047	90206	449979	5180296	57.4
15-19	1.22	1.3	0.0063	89785	447514	4730318	52.7
20-24	1.93	2.0	0.0099	89220	443895	4282803	48.0
25-29	2.42	2.5	0.0124	88338	438952	3838908	43.5
30-34	3.09	3.2	0.0158	87243	432766	3399955	39.0
35-39	4.00	4.1	0.0204	85863	424939	2967189	34.6
40-44	5.64	5.8	0.0287	84112	414533	2542250	30.2
45-49	7.99	8.2	0.0404	81701	400259	2127718	26.0
50-54	13.25	13.7	0.0660	78403	379072	1727459	22.0
55-59	20.46	21.1	0.1002	73226	347788	1348386	18.4
60-64	31.34	32.3	0.1495	65889	304826	1000599	15.2
65-69	46.22	47.6	0.2129	56042	250383	695773	12.4
70+	91.65	99.0	1.0000	44112	445391	445391	10.1

Growth rate (70+) = 0.018
Correction for M70+ = 1.048
IMR = 67.9

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.97

Table A66 Sample Registration System-Based Abridged Life Table, Karnataka, Females, 1990-97

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	19.26	65.4	0.0623	100000	95328	6450210	64.5
1-4		7.3	0.0287	93770	367689	6354883	67.8
5-9	1.47	1.5	0.0077	91082	453656	5987194	65.7
10-14	1.09	1.1	0.0057	90380	450611	5533538	61.2
15-19	2.08	2.2	0.0109	89865	446882	5082927	56.6
20-24	2.29	2.4	0.0120	88888	441780	4636045	52.2
25-29	2.33	2.5	0.0122	87824	436446	4194265	47.8
30-34	2.30	2.4	0.0120	86754	431162	3757819	43.3
35-39	2.43	2.6	0.0127	85711	425827	3326657	38.8
40-44	3.50	3.7	0.0183	84620	419236	2900830	34.3
45-49	4.87	5.1	0.0253	83074	410116	2481593	29.9
50-54	7.26	7.6	0.0375	80972	397269	2071478	25.6
55-59	12.25	12.9	0.0625	77936	377507	1674209	21.5
60-64	20.36	21.4	0.1017	73067	346759	1296702	17.7
65-69	32.21	33.9	0.1563	65636	302540	949944	14.5
70+	75.62	85.5	1.0000	55380	647403	647403	11.7

Growth rate (70+) = 0.022
Correction for M70+ = 1.075
IMR = 62.3

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.95

Table A67 Sample Registration System-Based Abridged Life Table, Kerala, Males, 1990-97

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	4.19	16.3	0.0161	100000	98793	6814233	68.1
1-4		1.1	0.0046	98390	392322	6715441	68.3
5-9	0.67	0.7	0.0034	97940	488868	6323118	64.6
10-14	0.41	0.4	0.0021	97607	487529	5834251	59.8
15-19	0.76	0.8	0.0038	97405	486085	5346722	54.9
20-24	1.25	1.3	0.0063	97030	483610	4860637	50.1
25-29	1.73	1.8	0.0088	96415	479953	4377026	45.4
30-34	2.20	2.2	0.0112	95567	475168	3897073	40.8
35-39	2.92	3.0	0.0148	94500	469008	3421905	36.2
40-44	4.14	4.2	0.0209	93103	460651	2952897	31.7
45-49	6.50	6.6	0.0326	91157	448355	2492246	27.3
50-54	10.50	10.7	0.0522	88185	429424	2043891	23.2
55-59	16.39	16.7	0.0803	83585	401152	1614467	19.3
60-64	25.28	25.8	0.1212	76876	361092	1213315	15.8
65-69	36.77	37.5	0.1715	67561	308839	852223	12.6
70+	93.95	103.0	1.0000	55975	543383	543383	9.7

Growth rate (70+) = 0.028
Correction for M70+ = 1.075
IMR = 16.1

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.98

Table A68 Sample Registration System-Based Abridged Life Table, Kerala, Females, 1990-97

Age $x - x+n$	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	3.51	13.7	0.0136	100000	98980	7347068	73.5
1-4		0.9	0.0037	98640	393546	7248088	73.5
5-9	0.47	0.5	0.0026	98271	490729	6854543	69.8
10-14	0.43	0.5	0.0023	98020	489534	6363814	64.9
15-19	0.55	0.6	0.0030	97793	488230	5874279	60.1
20-24	0.94	1.0	0.0051	97499	486257	5386049	55.2
25-29	0.88	1.0	0.0048	97004	483866	4899792	50.5
30-34	1.17	1.3	0.0063	96542	481186	4415926	45.7
35-39	1.28	1.4	0.0069	95932	477908	3934740	41.0
40-44	1.84	2.0	0.0099	95267	473968	3456742	36.3
45-49	2.96	3.2	0.0160	94320	467833	2982774	31.6
50-54	4.62	5.0	0.0248	92813	458318	2514941	27.1
55-59	6.51	7.1	0.0348	90514	444705	2056623	22.7
60-64	12.27	13.3	0.0645	87368	422751	1611919	18.4
65-69	19.79	21.5	0.1021	81732	387806	1189167	14.5
70+	74.44	91.6	1.0000	73390	801362	801362	10.9

Growth rate (70+) = 0.039
Correction for M70+ = 1.132
IMR = 13.6

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.92

Table A69 Sample Registration System-Based Abridged Life Table, Madhya Pradesh, Males, 1990-97

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	35.30	113.7	0.1048	100000	92140	5305752	53.1
1-4		14.3	0.0551	89520	344515	5213612	58.2
5-9	3.03	3.6	0.0179	84587	419156	4869097	57.6
10-14	1.84	2.2	0.0109	83075	413112	4449941	53.6
15-19	1.90	2.3	0.0112	82169	408537	4036829	49.1
20-24	2.58	3.1	0.0152	81245	403136	3628292	44.7
25-29	2.83	3.4	0.0167	80009	396699	3225156	40.3
30-34	3.24	3.9	0.0191	78671	389598	2828457	36.0
35-39	4.38	5.2	0.0257	77168	380882	2438859	31.6
40-44	5.68	6.8	0.0333	75184	369672	2057977	27.4
45-49	9.01	10.7	0.0522	72684	353931	1688305	23.2
50-54	14.86	17.7	0.0847	68888	329852	1334374	19.4
55-59	21.81	26.0	0.1219	63053	296049	1004522	15.9
60-64	35.06	41.7	0.1890	55367	250675	708472	12.8
65-69	49.33	58.7	0.2560	44903	195774	457797	10.2
70+	103.63	127.5	1.0000	33406	262023	262023	7.8

Growth rate (70+) = 0.018
Correction for M70+ = 1.033
IMR = 104.8

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.84

Table A70 Sample Registration System-Based Abridged Life Table, Madhya Pradesh, Females, 1990-97

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	37.99	110.6	0.1021	100000	92343	5338107	53.4
1-4		18.4	0.0700	89790	341872	5245765	58.4
5-9	3.61	4.3	0.0212	83504	413083	4903892	58.7
10-14	2.06	2.5	0.0122	81730	406160	4490809	54.9
15-19	3.07	3.7	0.0181	80734	400012	4084649	50.6
20-24	4.13	4.9	0.0243	79271	391539	3684637	46.5
25-29	3.69	4.4	0.0217	77345	382520	3293099	42.6
30-34	3.37	4.0	0.0199	75663	374560	2910579	38.5
35-39	3.71	4.4	0.0218	74161	366758	2536019	34.2
40-44	5.11	6.1	0.0300	72542	357277	2169261	29.9
45-49	5.96	7.1	0.0348	70369	345712	1811984	25.7
50-54	10.05	12.0	0.0581	67916	329717	1466272	21.6
55-59	15.06	17.9	0.0858	63971	306134	1136555	17.8
60-64	26.37	31.4	0.1455	58483	271138	830420	14.2
65-69	39.90	47.5	0.2123	49972	223337	559282	11.2
70+	96.33	117.2	1.0000	39363	335945	335945	8.5

Growth rate (70+) = 0.011
Correction for M70+ = 1.022
IMR = 102.1

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.84

Table A71 Sample Registration System-Based Abridged Life Table, Maharashtra, Males, 1990-97

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	14.59	57.4	0.0550	100000	95875	6050140	60.5
1-4		3.6	0.0144	94500	374266	5954265	63.0
5-9	1.20	1.5	0.0076	93142	463943	5579999	59.9
10-14	0.80	1.0	0.0050	92435	461012	5116056	55.3
15-19	1.08	1.4	0.0068	91970	458286	4655045	50.6
20-24	1.69	2.1	0.0106	91345	454299	4196759	45.9
25-29	2.27	2.9	0.0142	90375	448658	3742460	41.4
30-34	2.79	3.5	0.0175	89088	441542	3293802	37.0
35-39	3.44	4.4	0.0215	87529	432928	2852259	32.6
40-44	5.24	6.6	0.0326	85643	421234	2419332	28.2
45-49	8.02	10.1	0.0495	82851	404007	1998098	24.1
50-54	11.34	14.4	0.0693	78752	380122	1594091	20.2
55-59	18.29	23.2	0.1094	73297	346429	1213968	16.6
60-64	28.72	36.4	0.1666	65275	299185	867539	13.3
65-69	42.48	53.8	0.2370	54399	239763	568354	10.4
70+	92.73	126.3	1.0000	41506	328591	328591	7.9

Growth rate (70+) = 0.038
Correction for M70+ = 1.076
IMR = 55

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.79

Table A72 Sample Registration System-Based Abridged Life Table, Maharashtra, Females, 1990-97

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	14.80	55.5	0.0533	100000	96003	6461814	64.6
1-4		4.4	0.0172	94670	374200	6365812	67.2
5-9	1.43	1.6	0.0081	93041	463321	5991612	64.4
10-14	1.10	1.2	0.0062	92288	460003	5528291	59.9
15-19	1.71	1.9	0.0097	91714	456345	5068288	55.3
20-24	2.31	2.6	0.0130	90824	451163	4611943	50.8
25-29	1.92	2.2	0.0108	89641	445774	4160780	46.4
30-34	2.27	2.6	0.0128	88669	440499	3715005	41.9
35-39	2.71	3.1	0.0153	87531	434305	3274507	37.4
40-44	3.14	3.6	0.0177	86191	427142	2840202	33.0
45-49	4.45	5.1	0.0250	84666	418039	2413060	28.5
50-54	7.02	8.0	0.0391	82550	404676	1995021	24.2
55-59	11.63	13.2	0.0640	79321	383916	1590344	20.0
60-64	19.73	22.4	0.1062	74246	351523	1206429	16.2
65-69	31.85	36.2	0.1659	66364	304289	854905	12.9
70+	80.76	100.5	1.0000	55352	550616	550616	9.9

Growth rate (70+) = 0.034
Correction for M70+ = 1.095
IMR = 53.3

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.88

Table A73 Sample Registration System-Based Abridged Life Table, Orissa, Males, 1990-97

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	32.99	120.2	0.1103	100000	91728	5515302	55.2
1-4		9.9	0.0385	88970	346460	5423574	61.0
5-9	2.62	2.8	0.0137	85544	424793	5077114	59.4
10-14	1.52	1.6	0.0080	84373	420181	4652321	55.1
15-19	2.02	2.1	0.0106	83700	416282	4232140	50.6
20-24	2.92	3.1	0.0153	82813	410908	3815858	46.1
25-29	2.80	2.9	0.0146	81550	404766	3404950	41.8
30-34	3.50	3.7	0.0182	80357	398119	3000183	37.3
35-39	4.25	4.5	0.0221	78891	390089	2602064	33.0
40-44	6.16	6.5	0.0319	77144	379573	2211976	28.7
45-49	11.62	12.2	0.0593	74685	362346	1832403	24.5
50-54	13.93	14.7	0.0707	70254	338850	1470057	20.9
55-59	21.36	22.5	0.1064	65286	309061	1131207	17.3
60-64	32.22	33.9	0.1563	58338	268890	822146	14.1
65-69	45.73	48.1	0.2148	49218	219656	553256	11.2
70+	102.51	115.8	1.0000	38645	333600	333600	8.6

Growth rate (70+) = 0.033
Correction for M70+ = 1.074
IMR = 110.3

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.95

Table A74 Sample Registration System-Based Abridged Life Table, Orissa, Females, 1990-97

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	33.16	116.7	0.1073	100000	91953	5548371	55.5
1-4		11.0	0.0427	89270	346601	5456418	61.1
5-9	2.90	3.1	0.0156	85459	423961	5109817	59.8
10-14	1.71	1.9	0.0093	84125	418679	4685856	55.7
15-19	2 47	2.7	0.0133	83347	413954	4267177	51.2
20-24	3.68	4.0	0.0198	82235	407099	3853223	46.9
25-29	3.51	3.8	0.0189	80605	399219	3446125	42.8
30-34	3.64	4.0	0.0196	79083	391539	3046905	38.5
35-39	3.35	3.6	0.0181	77532	384161	2655366	34.2
40-44	5.71	6.2	0.0306	76132	374842	2271206	29.8
45-49	7.86	8.5	0.0418	73805	361302	1896364	25.7
50-54	10.36	11.3	0.0548	70716	343899	1535062	21.7
55-59	18.86	20.5	0.0975	66844	317927	1191163	17.8
60-64	30.01	32.6	0.1508	60327	278891	873236	14.5
65-69	42.77	46.5	0.2083	51229	229474	594345	11.6
70+	94.20	111.2	1.0000	40560	364871	364871	9.0

Growth rate (70+) = 0.036
Correction for M70+ = 1.086
IMR = 107.3

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.92

Table A75 Sample Registration System-Based Abridged Life Table, Punjab, Males, 1990-97

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	14.51	52.1	0.0501	100000	96243	6104672	61.0
1-4		4.9	0.0192	94990	374937	6008430	63.3
5-9	0.77	0.9	0.0047	93163	464733	5633493	60.5
10-14	1.00	1.2	0.0061	92730	462239	5168760	55.7
15-19	1.81	2.2	0.0110	92166	458298	4706521	51.1
20-24	3.25	4.0	0.0196	91153	451301	4248223	46.6
25-29	3.37	4.1	0.0203	89367	442292	3796922	42.5
30-34	3.39	4.1	0.0204	87550	433274	3354630	38.3
35-39	4.53	5.5	0.0272	85760	422960	2921356	34.1
40-44	5.95	7.3	0.0357	83424	409685	2498396	29.9
45-49	7.86	9.6	0.0468	80449	392828	2088711	26.0
50-54	12.34	15.0	0.0725	76682	369508	1695883	22.1
55-59	14.48	17.7	0.0846	71121	340569	1326375	18.6
60-64	23.12	28.2	0.1317	65106	304097	985806	15.1
65-69	30.57	37.3	0.1705	56533	258566	681709	12.1
70+	81.90	110.8	1.0000	46894	423143	423143	9.0

Growth rate (70+) = 0.043
Correction for M70+ = 1.110
IMR = 50.1

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.82

Table A76 Sample Registration System-Based Abridged Life Table, Punjab, Females, 1990-97

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	18.07	62.4	0.0596	100000	95530	6411255	64.1
1-4		6.6	0.0259	94040	369450	6315725	67.2
5-9	1.39	1.8	0.0089	91600	455970	5946275	64.9
10-14	1.14	1.5	0.0073	90788	452285	5490304	60.5
15-19	1.33	1.7	0.0085	90126	448717	5038020	55.9
20-24	1.73	2.2	0.0110	89361	444341	4589303	51.4
25-29	2.01	2.6	0.0128	88375	439054	4144962	46.9
30-34	1.56	2.0	0.0100	87246	434054	3705908	42.5
35-39	1.73	2.2	0.0110	86375	429496	3271854	37.9
40-44	2.69	3.5	0.0171	85423	423461	2842358	33.3
45-49	4.87	6.2	0.0307	83962	413359	2418896	28.8
50-54	7.89	10.1	0.0494	81382	396870	2005537	24.6
55-59	10.05	12.9	0.0624	77366	374755	1608667	20.8
60-64	16.66	21.4	0.1014	72536	344299	1233912	17.0
65-69	24.25	31.1	0.1442	65183	302413	889613	13.6
70+	68.04	95.0	1.0000	55782	587200	587200	10.5

Growth rate (70+) = 0.030
Correction for M70+ = 1.089
IMR = 59.6

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.78

Table A77 Sample Registration System-Based Abridged Life Table, Rajasthan, Males, 1990-97

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	28.07	86.9	0.0816	100000	93880	5780958	57.8
1-4		12.5	0.0484	91840	355139	5687078	61.9
5-9	1.89	2.1	0.0103	87396	434721	5331939	61.0
10-14	1.19	1.3	0.0065	86492	431050	4897217	56.6
15-19	1.53	1.7	0.0084	85928	427835	4466167	52.0
20-24	2.18	2.4	0.0119	85207	423493	4038332	47.4
25-29	2.36	2.6	0.0129	84191	418245	3614838	42.9
30-34	2.95	3.2	0.0161	83107	412195	3196593	38.5
35-39	3.65	4.0	0.0198	81771	404797	2784398	34.1
40-44	5.28	5.8	0.0286	80148	395008	2379601	29.7
45-49	8.50	9.3	0.0456	77855	380390	1984593	25.5
50-54	12.83	14.1	0.0681	74301	358853	1604203	21.6
55-59	17.28	19.0	0.0906	69240	330513	1245351	18.0
60-64	27.25	29.9	0.1393	62965	292902	914837	14.5
65-69	45.21	49.7	0.2210	54196	241041	621935	11.5
70+	93.21	110.8	1.0000	42221	380894	380894	9.0

Growth rate (70+) = 0.034
Correction for M70+ = 1.082
IMR = 81.6

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.91

Table A78 Sample Registration System-Based Abridged Life Table, Rajasthan, Females, 1990-97

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	31.87	93.2	0.0871	100000	93468	5982142	59.8
1-4		15.5	0.0595	91290	350225	5888674	64.5
5-9	2.67	2.9	0.0145	85859	426175	5538449	64.5
10-14	1.35	1.5	0.0074	84611	421492	5112274	60.4
15-19	2.11	2.3	0.0115	83986	417515	4690782	55.9
20-24	2.83	3.1	0.0154	83020	411899	4273267	51.5
25-29	2.70	3.0	0.0147	81740	405685	3861368	47.2
30-34	2.79	3.1	0.0152	80534	399612	3455684	42.9
35-39	3.25	3.6	0.0177	79311	393042	3056072	38.5
40-44	2.86	3.1	0.0156	77906	386489	2663031	34.2
45-49	4.32	4.7	0.0235	76690	378951	2276541	29.7
50-54	6.70	7.4	0.0361	74891	367690	1897590	25.3
55-59	10.29	11.3	0.0550	72185	351004	1529900	21.2
60-64	20.18	22.2	0.1051	68217	323164	1178896	17.3
65-69	30.32	33.3	0.1538	61049	281774	855732	14.0
70+	72.04	90.0	1.0000	51661	573957	573957	11.1

Growth rate (70+) = 0.039
Correction for M70+ = 1.137
IMR = 87.1

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.91

Table A79 Sample Registration System-Based Abridged Life Table, Tamil Nadu, Males, 1990-97

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	14.32	58.2	0.0558	100000	95815	5888520	58.9
1-4		3.1	0.0122	94420	374506	5792705	61.4
5-9	1.52	1.9	0.0097	93266	464067	5418200	58.1
10-14	0.85	1.1	0.0054	92361	460548	4954133	53.6
15-19	1.77	2.3	0.0113	91858	456704	4493584	48.9
20-24	2.42	3.1	0.0154	90823	450620	4036881	44.4
25-29	2.91	3.7	0.0185	89425	442989	3586261	40.1
30-34	3.32	4.3	0.0211	87771	434235	3143272	35.8
35-39	4.56	5.8	0.0288	85923	423433	2709037	31.5
40-44	5.74	7.4	0.0362	83450	409707	2285603	27.4
45-49	8.45	10.8	0.0527	80433	391564	1875896	23.3
50-54	13.23	17.0	0.0813	76193	365471	1484332	19.5
55-59	19.55	25.1	0.1179	69996	329341	1118861	16.0
60-64	30.61	39.2	0.1787	61741	281120	789520	12.8
65-69	46.55	59.7	0.2596	50707	220622	508400	10.0
70+	97.07	130.5	1.0000	37541	287778	287778	7.7

Growth rate (70+) = 0.027
Correction for M70+ = 1.048
IMR = 55.8

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.78

Table A80 Sample Registration System-Based Abridged Life Table, Tamil Nadu, Females, 1990-97

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	14.68	59.3	0.0568	100000	95740	6011858	60.1
1-4		3.3	0.0129	94320	373934	5916118	62.7
5-9	1.33	1.9	0.0096	93103	463289	5542185	59.5
10-14	0.95	1.4	0.0069	92212	459479	5078896	55.1
15-19	2.06	3.0	0.0148	91579	454500	4619416	50.4
20-24	2.74	4.0	0.0197	90221	446665	4164916	46.2
25-29	2.21	3.2	0.0159	88445	438707	3718251	42.0
30-34	2.36	3.4	0.0169	87038	431506	3279544	37.7
35-39	2.79	4.0	0.0200	85565	423536	2848038	33.3
40-44	3.75	5.4	0.0268	83850	413621	2424502	28.9
45-49	5.01	7.3	0.0357	81599	400714	2010881	24.6
50-54	9.15	13.3	0.0642	78687	380805	1610167	20.5
55-59	12.82	18.6	0.0888	73635	351837	1229362	16.7
60-64	24.05	34.9	0.1603	67100	308602	877525	13.1
65-69	38.25	55.4	0.2435	56341	247414	568923	10.1
70+	88.22	132.6	1.0000	42624	321509	321509	7.5

Growth rate (70+) = 0.021
Correction for M70+ = 1.037
IMR = 56.8

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.69

Table A81 Sample Registration System-Based Abridged Life Table, Uttar Pradesh, Males, 1990-97

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	30.4	93.2	0.0871	100000	93468	5664141	56.6
1-4		13.7	0.0528	91290	351914	5570673	61.0
5-9	2.6	2.8	0.0139	86473	429358	5218759	60.4
10-14	1.4	1.5	0.0076	85270	424726	4789401	56.2
15-19	1.8	1.9	0.0095	84620	421082	4364675	51.6
20-24	2.4	2.5	0.0126	83813	416423	3943593	47.1
25-29	2.9	3.1	0.0153	82757	410617	3527170	42.6
30-34	3.2	3.4	0.0169	81490	404012	3116554	38.2
35-39	4.2	4.5	0.0223	80115	396111	2712542	33.9
40-44	5.9	6.2	0.0306	78330	385649	2316431	29.6
45-49	9.1	9.7	0.0473	75930	370672	1930782	25.4
50-54	13.6	14.5	0.0699	72339	349062	1560110	21.6
55-59	19.9	21.1	0.1004	67286	319537	1211048	18.0
60-64	30.4	32.4	0.1497	60529	279990	891510	14.7
65-69	45.7	48.6	0.2166	51467	229472	611520	11.9
70+	89.0	105.5	1.0000	40321	382048	382048	9.5

Growth rate (70+) = 0.042
Correction for M70+ = 1.115
IMR = 87.1

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.94

Table A82 Sample Registration System-Based Abridged Life Table, Uttar Pradesh, Females, 1990-97

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	37.3	103.8	0.0963	100000	92778	5523510	55.2
1-4		19.4	0.0736	90370	343194	5430733	60.1
5-9	3.8	4.3	0.0212	83721	414167	5087538	60.8
10-14	1.6	1.7	0.0087	81946	407954	4673371	57.0
15-19	2.5	2.8	0.0141	81235	403323	4265417	52.5
20-24	3.7	4.2	0.0207	80094	396324	3862093	48.2
25-29	4.0	4.5	0.0221	78436	387843	3465769	44.2
30-34	4.1	4.6	0.0226	76701	379182	3077926	40.1
35-39	3.7	4.2	0.0207	74972	370973	2698744	36.0
40-44	4.6	5.2	0.0256	73418	362383	2327771	31.7
45-49	6.1	6.9	0.0337	71536	351647	1965387	27.5
50-54	10.4	11.7	0.0568	69123	335794	1613740	23.3
55-59	14.4	16.2	0.0780	65194	313264	1277946	19.6
60-64	24.6	27.7	0.1294	60111	281105	964682	16.0
65-69	35.0	39.3	0.1789	52331	238251	683576	13.1
70+	79.0	96.5	1.0000	42970	445325	445325	10.4

Growth rate (70+) = 0.030
Correction for M70+ = 1.088
IMR = 96.3

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.89

Table A83 Sample Registration System-Based Abridged Life Table, West Bengal, Males, 1990-97

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	18.46	65.1	0.0621	100000	95343	5901058	59.0
1-4		6.4	0.0251	93790	368685	5805715	61.9
5-9	1.79	2.2	0.0109	91436	454693	5437030	59.5
10-14	1.16	1.4	0.0071	90442	450603	4982337	55.1
15-19	1.63	2.0	0.0100	89800	446764	4531734	50.5
20-24	1.87	2.3	0.0114	88906	441998	4084970	45.9
25-29	2.08	2.5	0.0127	87893	436683	3642972	41.4
30-34	2.52	3.1	0.0153	86780	430585	3206289	36.9
35-39	3.01	3.7	0.0183	85454	423366	2775704	32.5
40-44	4.54	5.6	0.0274	83893	413713	2352337	28.0
45-49	7.42	9.1	0.0444	81592	398901	1938624	23.8
50-54	12.52	15.3	0.0738	77968	375452	1539723	19.7
55-59	19.84	24.3	0.1145	72213	340396	1164271	16.1
60-64	32.39	39.6	0.1803	63946	290897	823874	12.9
65-69	48.23	59.0	0.2572	52413	228362	532977	10.2
70+	99.91	127.8	1.0000	38932	304616	304616	7.8

Growth rate (70+) = 0.024
Correction for M70+ = 1.045
IMR = 62.1

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.82

Table A84 Sample Registration System-Based Abridged Life Table, West Bengal, Females, 1990-97

Age x - x+n	Unadjusted ${}_nM_x$	Adjusted ${}_nm_x$	${}_nq_x$	l_x	${}_nL_x$	T_x	e_x
0	18.79	62.3	0.0595	100000	95538	6248965	62.5
1-4		7.5	0.0295	94050	368577	6153427	65.4
5-9	1.98	2.1	0.0105	91278	453984	5784850	63.4
10-14	1.29	1.4	0.0069	90315	450029	5330866	59.0
15-19	2.40	2.6	0.0128	89696	445619	4880837	54.4
20-24	2.77	3.0	0.0147	88552	439509	4435218	50.1
25-29	2.16	2.3	0.0115	87252	433758	3995709	45.8
30-34	2.43	2.6	0.0129	86251	428478	3561951	41.3
35-39	2.83	3.0	0.0150	85140	422509	3133472	36.8
40-44	3.60	3.8	0.0190	83863	415328	2710963	32.3
45-49	5.56	5.9	0.0293	82268	405321	2295635	27.9
50-54	9.32	10.0	0.0486	79861	389602	1890314	23.7
55-59	15.13	16.2	0.0777	75980	365141	1500712	19.8
60-64	24.30	26.0	0.1219	70076	329031	1135571	16.2
65-69	36.17	38.6	0.1762	61536	280576	806541	13.1
70+	82.58	96.4	1.0000	50695	525965	525965	10.4

Growth rate (70+) = 0.031
Correction for M70+ = 1.092
IMR = 59.5

Assumed completeness of deaths of age 0-4 = 1.00
Estimated completeness of deaths of age 5+ = 0.94