

International Institute for Population Sciences (IIPS), Dept. of Fertility Studies:  
Construction of Abridged Life Tables for Districts in India: Using UNCOMBIN of  
MORTPAK-LITE (by Krishna Murthy Ponnappalli), Mumbai.

# Construction of Abridged Life Tables for Districts in India:

## Using UNCOMBIN of MORTPAK- LITE

Krishna Murthy Ponnappalli

Associate Professor, Dept. of Fertility Studies, IIPS, Mumbai-88

### Extended Abstract

United Nations suggested a program “UNCOMBIN” to calculate a "model" life table from an estimate of life expectancy at age 20 combined with an estimate of survivorship to age 1, survivorship to age 5, or both. In the present study an attempt is made at first to estimate LE(20) indirectly from an estimate of the Infant mortality rate (IMR). These IMR values have been obtained from the 2009 report of the Registrar General of India on “District Level Estimates of Child Mortality in India Based on the 2001 Census Data. The above reports states that these IMR values are obtained using the Brass method and using the U.N. South Asian Pattern as it is the most commonly accepted pattern for India. So when using the UNCOMBIN also UN South Asian Pattern of the Model Life Tables is used. IMR is at first converted into  $l_1$  as  $l_1$  is one of the inputs. No attempt is made to consider the other input  $l_5$  here as it is not a mandatory. LE(20) values of Both Sexes Combined, Males and Females are calculated using the following regression models:

Both Sexes: **LE(20) = 55.105328-71.184\*IMR**, R=.793;  $R^2 = .628$ ; Adj  $R^2 = .627$ ; SEE=1.840; F=508.813; N=303.  
(202.695) (-22.557)

Males: **LE(20) = 53.03461-60.01912\*IMR**, R=.773;  $R^2 = .597$ ; Adj  $R^2 = .596$ ; SEE=1.632; F=446.357; N=303.  
(216.552) (-21.127)

Females: **LE(20) = 56.92699-78.01446\*IMR**, R=.751;  $R^2 = .564$ ; Adj  $R^2 = .563$ ; SEE=2.369; F=389.964; N=303.  
(166.759) (-19.748)

## GURDASPUR

Table 1: ABRIDGED LIFE TABLES BY SEX AND RESIDENCE, PUNJAB -2001

| Age<br>x | Total-Total |        | Total-Male |        | Total-Female |        | Rural-Total |        | Rural-Male |        | Rural-Female |        | Urban-Total |        | Urban-Male |        | Urban-Female |        |
|----------|-------------|--------|------------|--------|--------------|--------|-------------|--------|------------|--------|--------------|--------|-------------|--------|------------|--------|--------------|--------|
|          | l(x)        | e(x)   | l(x)       | e(x)   | l(x)         | e(x)   | l(x)        | e(x)   | l(x)       | e(x)   | l(x)         | e(x)   | l(x)        | e(x)   | l(x)       | e(x)   | l(x)         | e(x)   |
| 0        | 100000      | 65.143 | 100000     | 64.543 | 100000       | 65.124 | 100000      | 64.959 | 100000     | 64.203 | 100000       | 64.724 | 100000      | 66.244 | 1E+05      | 65.220 | 100000       | 66.519 |
| 1        | 94600       | 67.850 | 95200      | 66.788 | 94100        | 68.193 | 94500       | 67.728 | 95000      | 66.572 | 93900        | 67.913 | 95200       | 68.575 | 95600      | 67.214 | 94800        | 69.156 |
| 5        | 92640       | 65.254 | 93551      | 63.938 | 91340        | 66.211 | 92485       | 65.171 | 93247      | 63.796 | 91011        | 66.024 | 93559       | 65.751 | 94154      | 64.223 | 92473        | 66.860 |
| 10       | 91900       | 60.759 | 92653      | 59.534 | 90498        | 61.803 | 91735       | 60.683 | 92328      | 59.406 | 90147        | 61.632 | 92878       | 61.215 | 93295      | 59.791 | 91705        | 62.400 |
| 15       | 91547       | 55.984 | 92218      | 54.803 | 90147        | 57.034 | 91379       | 55.910 | 91885      | 54.680 | 89788        | 56.869 | 92548       | 56.424 | 92875      | 55.051 | 91386        | 57.608 |
| 20       | 91074       | 51.261 | 91603      | 50.154 | 89669        | 52.324 | 90902       | 51.190 | 91265      | 50.034 | 89296        | 52.168 | 92097       | 51.688 | 92271      | 50.394 | 90954        | 52.870 |
| 25       | 90565       | 46.535 | 90986      | 45.476 | 89079        | 47.654 | 90387       | 46.467 | 90639      | 45.362 | 88690        | 47.507 | 91618       | 46.945 | 91674      | 45.706 | 90417        | 48.169 |
| 30       | 89934       | 41.843 | 90228      | 40.837 | 88407        | 42.996 | 89750       | 41.778 | 89869      | 40.728 | 88002        | 42.858 | 91024       | 42.234 | 90939      | 41.054 | 89801        | 43.481 |
| 35       | 89158       | 37.185 | 89296      | 36.236 | 87576        | 38.380 | 88966       | 37.123 | 88923      | 36.134 | 87152        | 38.251 | 90293       | 37.555 | 90035      | 36.440 | 89034        | 38.834 |
| 40       | 88058       | 32.616 | 87995      | 31.733 | 86520        | 33.816 | 87856       | 32.559 | 87604      | 31.638 | 86076        | 33.697 | 89251       | 32.962 | 88768      | 31.922 | 88049        | 34.239 |
| 45       | 86396       | 28.192 | 86066      | 27.384 | 85091        | 29.340 | 86182       | 28.139 | 85653      | 27.298 | 84624        | 29.230 | 87665       | 28.510 | 86883      | 27.557 | 86696        | 29.732 |
| 50       | 83829       | 23.973 | 83153      | 23.249 | 83074        | 24.988 | 83600       | 23.925 | 82714      | 23.173 | 82582        | 24.886 | 85193       | 24.259 | 84023      | 23.404 | 84766        | 25.348 |
| 55       | 79727       | 20.068 | 78614      | 19.438 | 79879        | 20.880 | 79479       | 20.027 | 78146      | 19.371 | 79357        | 20.789 | 81202       | 20.320 | 79541      | 19.572 | 81682        | 21.203 |
| 60       | 73687       | 16.495 | 72096      | 15.955 | 74898        | 17.090 | 73422       | 16.460 | 71606      | 15.898 | 74339        | 17.011 | 75269       | 16.711 | 73071      | 16.070 | 76834        | 17.372 |
| 65       | 64811       | 13.393 | 62737      | 12.943 | 67289        | 13.722 | 64534       | 13.364 | 62237      | 12.896 | 66696        | 13.656 | 66471       | 13.574 | 63735      | 13.039 | 69357        | 13.957 |
| 70       | 53298       | 10.726 | 50847      | 10.366 | 56750        | 10.783 | 53021       | 10.702 | 50362      | 10.328 | 56144        | 10.730 | 54967       | 10.872 | 51820      | 10.442 | 58878        | 10.974 |
| 75       | 39585       | 8.562  | 37031      | 8.290  | 43260        | 8.343  | 39330       | 8.544  | 36599      | 8.262  | 42685        | 8.301  | 41133       | 8.672  | 37901      | 8.348  | 45299        | 8.490  |
| 80       | 25787       | 6.823  | 23550      | 6.632  | 28370        | 6.409  | 25582       | 6.811  | 23215      | 6.612  | 27888        | 6.381  | 27047       | 6.901  | 24229      | 6.672  | 30101        | 6.510  |
| 85       | 14182       | 5.444  | 12616      | 5.313  | 15103        | 4.916  | 14045       | 5.435  | 12401      | 5.300  | 14783        | 4.897  | 15028       | 5.496  | 13053      | 5.341  | 16270        | 4.984  |