

Appendix: Indirect Method of Fertility estimation: Computations.

1. BRASS P / F RATIO METHOD.

NB.: f_1/f_2 is used as multiplier for the first 3 age groups and mean age for the remaining age groups (30 to 49).

$\frac{f_1}{f_2} = \frac{0.1049}{0.1259} = 0.833$, which value falls between **0.764** and **0.939** see Brass multiplier Table for fertility estimation, UN (1983), Manuel X.

Using the table of multipliers and interpolating, $\frac{0.833 - 0.764}{0.939 - 0.764} = 0.4$

Therefore, interpolation factors are 0.4 and 0.6.

Using the notation $f_1b + f_2a$, multipliers for the first 3 age groups are computed as follow:

$$K_{15-19} = (0.4 * 3.170) + (0.6 * 2.925) = 3.023$$

$$K_{20-24} = (0.4 * 2.985) + (0.6 * 2.960) = 2.970$$

$$K_{25-29} = (0.4 * 3.095) + (0.6 * 3.075) = 3.083$$

$$\begin{array}{l} \text{Mean} \qquad \qquad \qquad \text{age} \qquad \qquad \qquad \text{(m)} \\ = \\ \frac{(17 * 0.1049) + (22 * 0.1259) + (27 * 0.1129) + (32 * 0.0963) + (37 * 0.0729) + (42 * 0.0339) + (47 * 0.0173)}{0.5641} \end{array}$$

= 27.69, which value falls between 26.7 and 27.7 (See Brass multiplier table for fertility estimation).

Using the outlined table above and interpolating $\frac{27.69 - 26.7}{27.70 - 26.7} = 0.99$. Therefore, the interpolation factors are 0.99 and 0.01.

Using the notation $m_1a + m_2b$, multipliers for age groups 30 to 49 have been computed as follow:

$$K_{30-34} = (0.99 * 3.140) + (0.01 * 3.165) = 3.14025$$

$$K_{35-39} = (0.99 * 3.285) + (0.01 * 3.325) = 3.2854$$

$$K_{40-44} = (0.99 * 3.610) + (0.01 * 3.740) = 3.6113$$

$$K_{45-49} = (0.99 * 4.630) + (0.01 * 4.840) = 4.6321.$$

These calculations have been incorporated in the table 4.3 above (See Table 4.3, chapter 4).

2. COALE AND TRUSSEL METHOD

1. Computation of $F_{(i)}$

$$F_i = \Phi_{i-1} + a(i)f(i) + b(i)f(i+1) + c(i) \Phi(7).$$

This is the estimation of the average parity equivalents for a period, where parameters a, b, and c are

Values of coefficients of interpolation obtained from the Coale Trussel table of multipliers (See UN, 1983, Manuel X).

$$F1 = 0 + (2.531 * 0.1049) + (-0.188 * 0.1259) + (0.0024 * 2.8205) = 0.2486$$

$$F2 = 0.5245 + (3.321 * 0.1259) + (-0.75 * 0.1129) + (0.0161 * 2.8205) = 0.902897$$

$$F3 = 1.1540 + (3.265 * 0.1129) + (-0.627 * 0.0963) + (0.0145 * 2.8205) = 1.503117$$

$$F4 = 1.7185 + (3.442 * 0.0963) + (-0.563 * 0.0729) + (0.0029 * 2.8205) = 2.0171$$

$$F5 = 2.200 + (3.518 * 0.0729) + (-0.763 * 0.0339) + (0.0006 * 2.8205) = 2.432286$$

$$F6 = 2.5645 + (3.862 * 0.0339) + (-2.481 * 0.0173) + (-0.0001 * 2.8205) = 2.65222$$

$$F7 = 2.7340 + (3.828 * 0.0173) + (0.016 * 0.0339) + (-0.0002 * 2.8205) = 2.800207$$

These values have been incorporated in the table 4.4, and $P2 / F2$ has been used as an adjustment factor. (See Table 4.4, chapter 4).